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NBS FORTRAN Test Programs

Volume 3 – Listings for Version 3

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INTRODUCTION

This document, Volume 3 of three volumes, contains the program listings and supporting input data for the NBS FORTRAN Test Programs, Version 3, developed by the Institute for Computer Sciences and Technology, National Bureau of Standards. The test programs are written in ASA Standard FORTRAN and test the language elements described in the ASA Standard FORTRAN document X3.9-1966.

The NBS FORTRAN Test Programs, Version 3, containing the same 116 test units as Version 1, are structured into 14 executable FORTRAN programs. These have been organized for use on large FORTRAN processors for the purpose of reducing the number of systems control cards needed to perform the tests.

Each executable program, identified as PART n, contains 6 input data records, 3 of which are available for user information (See Volume 1, Section II-A-3). PART 1 and PART 13 contain additional input data records. The input data is listed following each respective program.

Volume 1, Section I describes the system design, the programming techniques and conventions used in the program development and should enable the user to extend, alter or reorganize the test programs.

Volume 1, Section II defines the organization and operating procedure for performing the tests and contains a set of representative results obtained from actual running of the test programs on several FORTRAN processors.

Volume 1, Section III describes the order and location of each test unit and data as recorded on magnetic tape for distribution.

Volume 2 contains the program listings for the NBS FORTRAN Test Programs, Version 1.

Volume 3 contains the program listings for the NBS FORTRAN Test Programs, Version 3.

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Listings of NBS FORTRAN Test Programs, Version 3

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     1  , IAC1I(5), AC1S(25), MCA1I(5)                                 H0010040
      INTEGER AVI,MCA3I(2,3,3),I2I(2,2),I3I(2,2,2),BVI,MAVI,LAVI,I1I(5) H0010045
      REAL  JVS, MVS, CVS, BCVS                                        H0010050
      LOGICAL  MAVB, MBVB, MCVB, MCA1B(7), GH2B(1,2), GI3B(1,1,2),MCBVB H0010055
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C=    OIMENSION IAC2I(2,7), EP1S(33), AC2S(5,6)                        H0010130
```

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C=    1,AC3S(1,1,3)                                                          H0010135
C=     INTEGER AVI ,MCA3I(2,3,3), I1I(5)                                     H0010140
C=     REAL JVS                                                              H0010145
C=     LOGICAL MAVB,MBVB,MCVB,   MCA1B(7),GH2B(1,2),GI3B(1,1,2),GG1B(2)      H0010150
C=     DOUBLE PRECISION AVD,BVD,CVD,DVD                                      H0010155
C=    1,OPA2D(2,2),MCA3O(1,4,2),A1O(4)                                       H0010160
C=     COMPLEX AOSVC,BCVC,CHEVC,DCVC,LL1C(32),LM2C(8,4),LN3C(9,2,2)          H0010165
C*****                                                                       H0010170
C*****     TEST DATA INITIALIZATION OF INTEGER CONSTANTS TO     5.1.1.1     H0030230
C*****     INTEGER VARIABLES                                                 H0030240
      DATA  I1I(1),MCA3I(1,2,1),MCA3I(2,2,2),IAC2I(2,5),IAC2I(2,6),          H0030250
     AMCA3I(2,1,1)/0,2*10,3*246/                                             H0030260
C*****     TEST DATA INITIALIZATION OF REAL CONSTANTS TO        5.1.1.2     H0030270
C*****     REAL VARIABLES                                                    H0030280
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     AAC2S(5,2)/2*0.,2*-750.05,.24615E3,2.4615E2,3.54674E+3/                 H0030300
C*****     TEST DATA INITIALIZATION OF OP CONTANTS TO           5.1.1.3     H0030310
C*****     OP VARIABLES                                                      H0030320
      DATA BVO ,OPA2O(2,1),CVO,DPA2O(1,2),  DVO,DPA2O(2,2)/+34567890.1D-      H0030330
     A3,345.678901D+2,112233.5O-08,11.22335D-4,3.4D12,0.34D13/               H0030340
C*****     TEST DATA INITIALIZATION OF COMPLEX CONSTANTS TO     5.1.1.4     H0030350
C*****     COMPLEX VARIABLES                                                 H0030360
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     ALL1C(32),LN3C(8,1,2)/2*(11.1,22.22),(-3.45E1,-67.8E-1),                H0030380
     B(-34.5E0,-6.78E0),(10.E0,-20.E0),(1.0E1,-2.0E1),(-20.0E1,+4.E3),       H0030390
     C(-200.E0,+4000.E0)/                                                    H0030400
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C*****     LOGICAL VARIABLES                                                 H0030420
      DATA MAVB ,MCA1B(6), MBVB/2*.TRUE.,.FALSE./                            H0030430
C*****     TEST DATA INITIALIZATION OF HOLLERITH CONSTANTS      5.1.1.6     H0030440
      DATA GI3B(1,1,2),GG1B(1),EP1S(15)/2HNO,2*2HAO/                         H0030450
C*****     TEST DATA INITIALIZATION OF A MIXTURE OF ALL TYPES OF             H0030460
C*****     CONSTANTS AND VARIABLES IN ONE DATA STATEMENT                     H0030470
      DATA  I1I(2),IAC2I(1,5),IAC2I(1,3), I1I(5),IAC2I(2,4),                 H0030480
     AMCA3I(1,1,2), AVI,EP1S(13),AC2S(2,6),AC2S(1,6),AC3S(1,1,1),            H0030490
     BAC2S(3,6),AC3S(1,1,2),AC2S(4,6), AVO,A1O(1),OPA2O(1,1),                H0030500
     CMCA3O(1,1,1),A1O(2),MCA3O(1,1,2),LL1C(29),LN3C(8,2,1),BCVC,            H0030510
     OLM2C(8,4),GH2B(1,1),GI3B(1,1,1), MCVB/3*0,4*-750,2*0.,2*246.15,        H0030520
     E354674.E-2,354.674E+ 1,35467.4E-01,3*-.29505,-29.50+3,                 H0030530
     F3456.789010+01,0.3456789010+5,2*(1.11E1,+222.2E-1),(-34.5,-6.78),      H0030540
     G(-.345E2,-678.E-2),2*.TRUE.,.FALSE./, I1I(3), I1I(4),                  H0030550
     HMCA3I(1,2,2),AC2S(5,6),JVS       ,EP1S(14),AC3S(1,1,3),IAC2I(1,4),     H0030560
     ICHEVC,LL1C(31),DCVC,LM2C(8,2),A1O(3),MCA3O(1,3,1),A1O(4),              H0030570
     JMCA3D(1,4,1),           MCA1B(7),GH2B(1,2)              / 2*10,+246,   H0030580
     K-.75005E03,-7.5005E+02,2HBC,2H*=,2H P,2*(10.,-20.),                    H0030590
     L(-200.,+4000.),(-2000.E-1,+400.E1),+1122.3350-6,0.000011223350+2,      H0030600
     M34.0D11,0.034014,2*.FALSE./                                            H0030610
C*****     END OF SEGMENT 003                                                H0030620
C*************************************************************************H0080010
C*****                                                                       H0080020
C*****                          FMTRW - (008)                                H0080030
C*****                                                                       H0080040
C*************************************************************************H0080050
C*****  GENERAL PURPOSE                                          ASA REFSH0080060
C*****     TO TEST SIMPLE FORMAT AND FORMATTED I/O STATEMENTS   7.1.3.2.2H0080070
C*****     SO THAT THESE FEATURES MAY BE USED IN OTHER TEST     7.1.3.2.3H0080080
C*****     PROGRAM SEGMENTS                                     7.2.3     H0080090
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C*****  *  ALL FORMAT STATEMENTS ARE LABELED                  7.2.3  /57H0080110
C*****  *  H AND X DESCRIPTORS ARE NEVER REPEATED             7.2.3.3/54H0080120
C*****  *  FOR W.D DESCRIPTORS, D IS ALWAYS SPECIFIED AND     7.2.3.1/31H0080130
C*****     W IS EQUAL TO OR GREATER THAN D                     7.2.3.1/33H0080140
C*****  *  FIELD WIDTH IS NEVER ZERO                          7.2.3  /18H0080150
C*****  *  IF THERE IS AN I/O LIST, THE FORMAT STATEMENT       7.2.3.4/22H0080160
C*****     CONTAINS AT LEAST ONE FIELD DESCRIPTOR (OTHER                  H0080170
C*****     THAN H OR X)                                                   H0080180
C*****  *  ITEMS IN I/O LIST CORRESPOND TO FORMAT DESCRIPTORS  7.2.3.4/36H0080190
C*****  *  NEGATIVE OUTPUT VALUES ARE SIGNED                  7.2.3.6/56H0080200
```

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C*****  *  FIELD WIDTH NEVER EXCEEDED BY OUTPUT                  7.2.3.6/01H0080210
C*****  *  FOR I CONVERSION, EXTERNAL INPUT FIELDS ARE         7.2.3.6.1/07H0080220
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C*****  GENERAL COMMENTS                                                  H0080240
C*****     PLUS SIGNS FOR INPUT FIELDS ARE USUALLY OMITTED       7.2.3.6/44H0080250
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C*****                                                                    H0080270
C*****                                                                    H0080280
C*****     FORMATTEO WRITES WITHOUT AN I/O LIST (FORMAT         7.1.3.2.3/05H0080290
C*****     STATEMENTS TEST H ANO X OESCRIPTORS ANO SLASH        7.2.3.2  /44H0080300
C*****     RECORO OIVIOERS)                                     7.2.3.8  /09H0080310
C*****                                                          7.2.3.9  /31H0080320
C  INPUT DATA TO THIS SEGMENT CONSISTS OF 40 CARO IMAGES IN COL. 1 - 80 H0080330
COL.       1-----------------------------------------------------------61 H0080340
CARO  1      999                                                         H0080350
CARO  2      555554444                                                   H0080360
CARO  3      666  777777  8                                             H0080370
CARO  4      33333311111222222225555544444444444                         H0080380
CARO  5      7.7123456.7                                                 H0080390
CARO  6      8.889.9997.123456                                           H0080400
CARO  7      5.44446.5555533.133.133.133.1444.1                          H0080410
CARO  8      5555.15555.1  66666.166666.1  44.22                         H0080420
CARO  9      2.12.12.12.12.1666.3334.3334.3334.333                       H0080430
CARO 10    -0.1E+01+0.22E-01 0.333E+02 0.4444E+03-0.55555E-03+0.666666E+ H0080440
COL.     62------------77                                                H0080450
CARO 10 00+0.9876543E+12                                                 H0080460
COL.       1-----------------------------------------------------------61 H0080470
CARO 11    1.05.522.066.633.123455.0789                                  H0080480
CARD 12    123.00456.88 0.123E+01  +0.987+1 -0.2345+02 -0.6879E+2+0.7E+0 H0080490
COL      62-----70                                                       H0080500
CARO 12 3 0.4E+03                                                        H0080510
COL.       1-----------------------------------------------------------61 H0080520
CARO 13     0.9876543E-04+0.1357913E-04                                  H0080530
CARD 14    19.34+0.2468E+02    +.765+287.643.96 0.5407E+0243.96+0.5407E+0 H0080540
COL.     62-------------78                                               H0080550
CARO 14 243.96   0.5407+2                                               H0080560
COL.       1----------------------------- ----------------------------61 H0080570
CARO 15      +0.10+06                                                    H0080580
CARO 16    -0.3340-04    -.334-4 +0.7657654000 0.123456789010+10        H0080590
CARD 17     +0.98765432109876D-1+0.98765432109876D-01     .98765432109876 H0080600
COL.     62-66                                                           H0080610
CARO 17 -1                                                               H0080620
COL.       1-----------------------------------------------------------61 H0080630
CARO 18     -.555555542D+03  -0.555555542+3                              H0080640
CARO 19    TABC                                                          H0080650
CARO 20    FOEFFGHIT*+T1F$)TF                                            H0080660
CARO 21      9.91.19.92.29.93.39.94.49.91.19.92.29.93.39.94.4            H0080670
CARD 22    9.95.59.96.69.97.79.98.89.95.59.96.69.97.79.98.8              H0080680
CARO 23      -9.9-9.9-9.9-9.9                                            H0080690
CARO 24    -0.99D+01-0.990+01-0.990+01-0.99D+01-0.990+01 -.990+01  -.99+ H0080700
COL.     62-------72                                                     H0080710
CARD 24 01   -.99+1                                                     H0080720
COL.       1-----------------------------------------------------------61 H0080730
CARO 25    9999999999                                                    H0080740
CARO 26      +0.99D+01 0.99D+01  +.99D01   +.99D1                        H0080750
CARD 27    .9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9      H0080760
CARO 28    TFTFTFTFTF                                                    H0080770
CARD 29      99999999+0.990+01 0.99D+01 0.990+01+0.99D+01    .9901       H0080780
CARO 30    9.95.59.96.69.97.79.98.899999999999999TFFT9.99.99.99.99.9     H0080790
CARO 31         T   F          T    F                                    H0080800
CARO 32      4444.55555                                                  H0080810
COL.       1-----------------------------------------------------------61 H0080820
CARO 33    123.45678E2  1234.5678  123.45678  12.345678  1.2345678  .123 H0080830
COL.     62-66                                                           H0080840
CARD 33 45678                                                            H0080850
COL.       1-----------------------------------------------------------61 H0080860
CARD 34     9876.5498.7654E2 9876.54   987.6548647860-486.4786E286.4786  H0080870
COL.     62---------------80                                             H0080880
```

```
CARD 34  8657.8600  9876.54                                                    H0080890
COL.       1-----------------------------------------------------------61 H0080900
CARD 35    9.8765598.7654E2  9876.54  987.6548647860-386.4786E286.4786  H0080910
COL.    62---------------80                                                  H0080920
CARD 35  8657.8600  9876.54                                                  H0080930
COL.       1-----------------------------------------------------------61 H0080940
CARD 36   1223335448886112 22                                               H0080950
CARD 37   455666233444966111                                                H0080960
CARD 38   7889993775558997 77                                               H0080970
CARD 39   11112 334 559 880 11                                              H0080980
CARD 40   6 778 995 441 222 00                                              H0080990
C*****                                                                      H0081000
C*****  S P E C I F I C A T I O N S  SEGMENT 008                            H0081010
C*****                                                                      H0010175
C*****  WHEN EXECUTING ONLY SEGMENT 008, THE SPECIFICATION STATEMENTS       H0010180
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE C= IN COLUMNS                H0010185
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C=     DIMENSION A1S(5),A2S(2,2)  ,EP1S(33),CMA1S(5),A3S(3,3,3)            H0010195
C=    1,IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),MCA1I(5)                    H0010200
C=     INTEGER I2I(2,2),I3I(2,2,2),MCA3I(2,3,3)                            H0010205
C=     LOGICAL MCA1B(7),A1B(2),A2B(2,2),A3B(2,2,2),AVB,CVB,OVB ,MCBVB      H0010210
C=     OOUBLE PRECISION DPA1D(5),MCA3O(1,4,2),ZZDVD ,A2O(2,2),A3O(2,2,2)   H0010215
C=    1,AC1O(10),BC2D(7,4),DPAVD,DPBVD                                     H0010220
C=     COMPLEX BVC,QAVC,CHAVC,CHBVC,CHCVC,CHOVC                            H0010225
C=    1,LL1C(32),LM2C(8,4),A1C(12),A2C(2,2),B3C(2,2,2),B1C(8)              H0010230
C*****                                                                      H0010235
C*****  I N P U T - O U T P U T  TAPE  ASSIGNMENT STATEMENTS                H0081020
C*****                                                                      H0081030
       IRVI = 5                                                             H0070010
       NUVI = 6                                                             H0070015
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                            H0070020
       WRITE(NUVI,0071)                                                     H0070025
0071   FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//               H0070030
      1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                     H0070035
      3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                        H0070040
      4 42H  IN ACCOROANCE WITH ASA FORTRAN X3.9-1966//                     H0070045
      5 23H  VERSION 3     PART 1 ///)                                      H0070050
C*****  3 OF 6 INPUT CAROS IOENTIFY THE USERS SYSTEM ANO COMPILER           H0070055
C        PREPARED BY USER                                                   H0070060
C        READ, NO LIST                                                      H0070065
C        PREPARED BY USER                                                   H0070070
C        READ, NO LIST                                                      H0070075
C        PREPARED BY USER                                                   H0070080
C        READ, NO LIST                                                      H0070085
       READ(IRVI,0070)                                                      H0070090
       READ(IRVI,0072)                                                      H0070095
       READ(IRVI,0073)                                                      H0070100
0070   FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)                H0070105
0072   FORMAT(40H   TEST PROGRAMS                         /)                H0070110
0073   FORMAT(40H   FORTRAN COMPILER                      /)                H0070115
       WRITE(NUVI,0070)                                                     H0070120
       WRITE(NUVI,0072)                                                     H0070125
       WRITE(NUVI,0073)                                                     H0070130
C*****    HEADER FORMAT STATEMENT                                           H0081040
0080   FORMAT (1H1, 1X,27HFMTRW - (008) FORMATTEO I/O//2X,                  H0081050
      138HASA REFS - 7.1.3.2.2  7.1.3.2.3  7.2.3//2X,7HRESULTS)            H0081060
       WRITE (NUVI,0080)                                                    H0081070
C*****    FORMAT WITH OIGITS 0-9 IN H FIELDS                                H0081080
0081   FORMAT (//22H  10101010101010101010,9H999999999,8H88888888/2X,       H0081090
      17H7777777,6H666666,5H55555,4H4444,3H333,2H22,1H1)                    H0081100
       WRITE (NUVI,0081)                                                    H0081110
C*****    FORMAT  CONTAINING ALL LETTERS (A-Z) IN H FIELDS ANO              H0081120
C*****    A VARIABLE NUMBER OF BLANKS IN H ANO X FIELDS                     H0081130
0082   FORMAT(/2X,3HAAA,5X,5H     ,3HBBB,10X,3HCCC/3H   ,3HODD,9X,3HEEE,    H0081140
      19H          ,3HFFF/4X,3HGGG,8X,3HHHH,8H         ,3HIII/5H     ,3HJJJH0081150
      2,7H        ,3HKKK,7X,3HLLL/6X,3HMMM,6X,3HNNN,6H       ,3HOOO/7X,     H0081160
      3 3HPPP,5H      ,3HQQQ,5X,3HRRR/8X,3HSSS,4X,3HTTT,4H    ,3HUUU/    1H0081170
      45H          VVV   ,3HWWW,3X,3HXXX/12X,3HYYY,3X,3HZZZ)               H0081180
```

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      WRITE (NUVI,0082)                                                 H0081190
C*****    FORMAT CONTAINING H FIELD WITH ALL POSSIBLE                  H0081200
C*****    SPECIAL CHARACTERS                                 3.1/46H0081210
0083  FORMAT(/21H  = + - * / ( ) , . $)                                 H0081220
      WRITE (NUVI,0083)                                                 H0081230
C*****    FORMAT  TO TEST VERTICAL SPACING                             H0081240
C*****                                                  7.1.3.4/04H0081250
7154  FORMAT(/24H  BEGIN VERTICAL SPACING//30H  FORMAT(14H   SKIP 1 LINEH0081260
     1  /) /)                                                          H0081270
      WRITE (NUVI, 7154)                                                H0081280
7155  FORMAT(32H  FORMAT(15H   SKIP 2 LINES  //) //)                    H0081290
      WRITE (NUVI, 7155)                                                H0081300
7156  FORMAT(33H  FORMAT(16H   SKIP 3 LINES  ///) ///)                  H0081310
      WRITE (NUVI,7156)                                                 H0081320
0084  FORMAT( 32H  IMBEDDED SLASHES - SKIP 1 LINE //                    H0081330
     1  14H  SKIP 2 LINES///  14H  SKIP 3 LINES/ 3(/),                  H0081340
     2  19H  SKIP TO NEXT LINE/ 1H , 12H SKIP 1 LINE/ 1H0,              H0081350
     38H TEST NO/1H+,9X,14H/1H+,7HADVANCE/19H  SKIP TO NEW PAGE /       H0081360
     4  1H1,                /// 30H  END OF VERTICAL SPACING TEST)      H0081370
      WRITE (NUVI,0084)                                                 H0081380
C*****    FORMATTED READ AND WRITE STATEMENTS WITH INTEGER  7.1.3.2.1/25H0081390
C*****    VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST. (THE   7.2.3.3/01H0081400
C*****    NUMBER OF ITEMS IN THE LIST IS VARIABLE.) SOME               H0081410
C*****    FORMAT STATEMENTS CONTAIN REPEATED FIELDS.                   H0081420
C*****    FORMATS CONTAINING I CONVERSION DESCRIPTORS.      7.2.3.6.1/03H0081430
C*****    FIELDS WIDTH IS FROM 1 TO 5 DIGITS.  SOME         7.2.3.3  /01H0081440
C*****    FIELDS ARE REPEATED                                          H0081450
0085  FORMAT (//25H  BEGIN I CONVERSION TEST/40H  EACH PAIR OF LINES SHOH0081460
     1ULD BE IDENTICAL/47H  LINE 1 OF EACH GROUP IS HOLLERITH INFORMATIOH0081470
     2N)                                                              H0081480
      WRITE (NUVI,0085)                                                 H0081490
C*****  INPUT CARD   1                                                 H0081500
0086  FORMAT (2X,I3)                                                   H0081510
      READ (IRVI,0086) JACVI                                            H0081520
C*****  INPUT CARD   2                                                 H0081530
0087  FORMAT  (1X,I5,1X,I4)                                            H0081540
      READ (IRVI,0087) KBCVI, IAC1I(1)                                  H0081550
C*****  INPUT CARD   3                                                 H0081560
0088  FORMAT (2X,I3,2X,3(I2),2X,I1)                                    H0081570
      READ (IRVI,0088) IAC2I(1,2), LCCVI, IAC1I(5), IHDVI, MCA3I(1,2,3) H0081580
C*****  INPUT CARD   4                                                 H0081590
0089  FORMAT (2X,2(I3),1(I5),4(I2),5(I1),3(I4))                        H0081600
      READ (IRVI,0089) MDCVI, IAC2I(2,2), IAC1I(4), NECVI, IAC1I(3),    H0081610
     1     IAC2I(2,3), IAC2I(2,1), MRRVI, IGDVI, KGVI, IEDVI, IAC2I(1,1)H0081620
     2     ,IAC1I(2), IAC2I(2,7), MCA3I(2,1,3)                         H0081630
7086  FORMAT (/  5H  999)                                              H0081640
      WRITE (NUVI,7086)                                                 H0081650
      WRITE (NUVI,0086) JACVI                                           H0081660
7087  FORMAT (/ 11H  5555 4444)                                        H0081670
      WRITE (NUVI,7087)                                                 H0081680
      WRITE (NUVI,0087) KBCVI, IAC1I(1)                                 H0081690
7088  FORMAT (/ 16H  666  777777  8)                                   H0081700
      WRITE (NUVI,7088)                                                 H0081710
      WRITE (NUVI,0088) IAC2I(1,2), LCCVI, IAC1I(5), IHDVI, MCA3I(1,2,3)H0081720
7089  FORMAT (/ 38H  33333311111222222225555544444444444)              H0081730
      WRITE (NUVI,7089)                                                 H0081740
      WRITE (NUVI,0089) MDCVI, IAC2I(2,2), IAC1I(4), NECVI, IAC1I(3),   H0081750
     1     IAC2I(2,3), IAC2I(2,1), MRRVI, IGDVI, KGVI, IEDVI, IAC2I(1,1)H0081760
     2     ,IAC1I(2), IAC2I(2,7), MCA3I(2,1,3)                         H0081770
C*****    FORMATTED READ AND WRITE STATEMENTS WITH REAL     7.1.3.2.1/25H0081780
C*****    VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST.(THE  7.2.3.6.2/18H0081790
C*****    NUMBER OF ITEMS IN THE LIST IS VARIABLE.) ONLY    7.2.3.3  /01H0081800
C*****    F CONVERSION IS USED IN THE FORMAT STATEMENTS.                H0081810
C*****    SOME F FIELD DESCRIPTORS ARE REPEATED. FIELD                  H0081820
C*****    WIDTH ALWAYS CONTAINS 1 POSITION FOR DECIMAL PT.              H0081830
C*****    FORMATS CONTAINING F CONVERSION DESCRIPTORS.      7.2.3.6.2/18H0081840
C*****    FIELD WIDTH IS FROM 1 TO 7 DIGITS. PLACEMENT OF   7.2.3.3  /01H0081850
C*****    DECIMAL POINT IS VARIABLE. SOME F FIELDS ARE                  H0081860
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C*****    REPEATED                                                      H0081870
7080  FORMAT (/ 25H  BEGIN F CONVERSION TEST/40H  EACH PAIR OF LINES SHOH0081880
     1ULD BE IDENTICAL)                                                 H0081890
      WRITE (NUVI,7080)                                                 H0081900
C*****  INPUT CARD   5                                                 H0081910
7081  FORMAT (2X,F3.1,F8.1)                                             H0081920
      READ (IRVI,7081) ACVS, CMAVS                                      H0081930
C*****  INPUT CARD   6                                                 H0081940
7082  FORMAT(2X,F4.2,F5.3,F8.6)                                         H0081950
      READ (IRVI,7082) A1S(2), BCVS, CMBVS                              H0081960
C*****  INPUT CARD   7                                                 H0081970
7083  FORMAT (2X,F6.4,F7.5,4(F4.1),F5.1)                                H0081980
      READ (IRVI,7083) HHCVS, CMCVS, GGCVS, FFCVS, A1S(1), AC1S(25),    H0081990
     1    AC2S(4,1)                                                     H0082000
C*****  INPUT CARD   8                                                 H0082010
7084  FORMAT (2X,2(F6.1),2X,2(F7.1),2X,F5.2)                            H0082020
      READ (IRVI,7084) AC1S(18), AC1S(7), AC2S(4,4) , AC1S(8), AC1S(10) H0082030
C*****  INPUT CARD   9                                                 H0082040
7085  FORMAT (2X,5(F3.1),F7.3,3(F5.3))                                  H0082050
      READ (IRVI,7085) AC2S(3,3) , AC2S(5,1), CCVS, AC1S(12), DCVS,     H0082060
     1    AC1S(13), AC1S(5), A3S(1,1,2), AC2S(3,5)                      H0082070
7091  FORMAT (/ 13H  7.7123456.7)                                       H0082080
      WRITE (NUVI,7091)                                                 H0082090
      WRITE (NUVI,7081) ACVS, CMAVS                                     H0082100
7092  FORMAT (/ 19H  8.889.9997.123456)                                 H0082110
      WRITE (NUVI,7092)                                                 H0082120
      WRITE (NUVI,7082) A1S(2), BCVS, CMBVS                             H0082130
7093  FORMAT (/ 36H  5.44446.5555533.133.133.133.1444.1)                H0082140
      WRITE (NUVI,7093)                                                 H0082150
      WRITE (NUVI,7083) HHCVS, CMCVS, GGCVS, FFCVS, A1S(1), AC1S(25)    H0082160
     1    ,AC2S(4,1)                                                    H0082170
7094  FORMAT (/ 37H  5555.15555.1  66666.166666.1  44.22 )              H0082180
      WRITE (NUVI,7094)                                                 H0082190
      WRITE (NUVI,7084) AC1S(18), AC1S(7), AC2S(4,4) , AC1S(8), AC1S(10)H0082200
7095  FORMAT ( /39H  2.12.12.12.12.1666.3334.3334.3334.333)             H0082210
      WRITE (NUVI,7095)                                                 H0082220
      WRITE (NUVI,7085) AC2S(3,3) , AC2S(5,1), CCVS, AC1S(12), DCVS,    H0082230
     1    AC1S(13), AC1S(5),  A3S(1,1,2), AC2S(3,5)                     H0082240
C*****    FORMATTED READ AND WRITE STATEMENTS WITH REAL      7.1.3.2.1/  H0082250
C*****     VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST.      7.2.3.6.2/  H0082260
C*****     E CONVERSION IS USED IN THE FORMAT STATEMENTS     7.2.3.3  /  H0082270
C*****     SOME E FIELD DESCRIPTORS ARE REPEATED                         H0082280
C*****    (FIELD WIDTH ALWAYS INCLUDES 6 EXTRA POSITIONS  7.2.3.6.2.1/47H0082290
C*****    TO PROVIDE FOR SIGN, DECIMAL POINT AND EXPONENT.     7.2.3.6/01H0082300
C*****    PROVISION IS ALWAYS MADE FOR THE DIGIT ZERO      7.2.3.6.2.1/04H0082310
C*****    BEFORE THE DECIMAL POINT)                                     H0082320
C*****    THE NUMBER OF DECIMAL PLACES VARIES FROM 1                    H0082330
C*****    TO 7 DIGITS.                                                  H0082340
7110  FORMAT (//25H  BEGIN E CONVERSION TEST/40H  EACH PAIR OF LINES SHOH0082350
     1ULD BE IDENTICAL)                                                 H0082360
      WRITE (NUVI,7110)                                                 H0082370
C*****  INPUT CARD  10                                                 H0082380
7111  FORMAT (E8.1,E9.2,E10.3,E11.4,E12.5,E13.6,E14.7)                  H0082390
      READ (IRVI,7111) AVS, BVS, EP1S(5), AC2S(1,5), CVS, AC2S(5,4),    H0082400
     1    A3S(2,1,2)                                                    H0082410
7112  FORMAT (/ 21H  -0.1E+01   0.22E-01/2X,E8.1,2X,E9.2//              H0082420
     1         25H   0.333E+02   0.4444E+03/2X,E10.3,2X,E11.4//        H0082430
     2         29H  -0.55555E-03   0.666666E+00/2X,E12.5,2X,E13.6//    H0082440
     3         16H   0.9876543E+12/2X,E14.7)                           H0082450
      WRITE (NUVI,7112) AVS, BVS, EP1S(5), AC2S(1,5), CVS, AC2S(5,4),   H0082460
     1    A3S(2,1,2)                                                    H0082470
C*****    FORMATTED READ AND WRITE STATEMENTS WITH COMPLEX  7.1.3.2.1/25H0082480
C*****    VARIABLES AND ARRAY ELEMAENTS IN AN I/O LIST.     7.2.3.6.4/52H0082490
C*****    E AND F CONVERSION ARE USED IN THE FORMAT         7.2.3.4  /39H0082500
C*****    STATEMENTS. SOME FORMAT DESCRIPTORS ARE REPEATED  7.2.3.3  /01H0082510
7118  FORMAT (  31H1 BEGIN COMPLEX CONVERSION TEST/32H  EACH GROUP SHOULH0082520
     1D BE IDENTICAL)                                                   H0082530
      WRITE (NUVI,7118)                                                 H0082540
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C*****  INPUT CARD  11                                                  H0082550
7119  FORMAT ( 2(F3.1) , 2(F4.1), 2(F7.4))                              H0082560
      READ (IRVI,7119) CHAVC, CHBVC, A1C(2)                             H0082570
C*****  INPUT CARDS 12, 13                                              H0082580
7120  FORMAT ( 2(F6.2), 2(E10.3), 2(E11.4), 2(E8.1)/ 2(E14.7))          H0082590
      READ (IRVI,7120) A2C(1,2), B3C(2,2,1), CHCVC, A1C(1), CHDVC       H0082600
C*****  INPUT CARD  14                                                  H0082610
7122  FORMAT (F5.2, E11.4, E10.3, F4.1, 3(F5.2,E11.4))                  H0082620
      READ (IRVI,7122) A2C(2,1), BVC, QAVC, LM2C(1,2), LL1C(2)          H0082630
7123  FORMAT (/ 10H  1.0  5.5/ 2X, F3.1,2X, F3.1 //                     H0082640
     1 12H  22.0  66.6/ 2X, F4.1, 2X, F4.1 //                           H0082650
     2 18H  33.1234  55.0789/ 2X, F7.4, 2X, F7.4 )                      H0082660
      WRITE (NUVI,7123) CHAVC, CHBVC, A1C(2)                            H0082670
7124  FORMAT (/ 16H  123.00  456.88/ 2X, F6.2, 2X, F6.2 //              H0082680
     1 24H   0.123E+01   0.987E+01/ 2X, E10.3, 2X, E10.3 //             H0082690
     2 26H  -0.2345E+02  -0.6879E+02/ 2X, E11.4, 2X, E11.4 //           H0082700
     3 20H   0.7E+03   0.4E+03/ 2X, E8.1, 2X, E8.1 //                   H0082710
     4 32H   0.9876543E-04   0.1357913E-04/ 2X, E14.7, 2X, E14.7)       H0082720
      WRITE (NUVI,7124) A2C(1,2), B3C(2,2,1), CHCVC, A1C(1), CHDVC      H0082730
7126  FORMAT (/ 20H  19.34   0.2468E+02/ 2X, F5.2, 2X, E11.4//          H0082740
     1 18H   0.765E+02  87.6/ 2X, E10.3, 2X,F4.1//                     H0082750
     2 18H  43.96 0.5407E+02/      3(F7.2,E11.4/))                     H0082760
      WRITE (NUVI,7126) A2C(2,1), BVC, QAVC, LM2C(1,2), LL1C(2)         H0082770
C*****    FORMATTED READ AND WRITE STATEMENTS WITH          7.1.3.2.1/25H0082780
C*****    DOUBLE PRECISION VARIABLES IN AN I/O LIST.        7.2.3.6.3/41H0082790
C*****    D CONVERSION IS USED IN THE FORMAT STATEMENTS.    7.2.3.3  /01H0082800
C*****    SOME D FORMAT DESCRIPTORS ARE REPEATED. (FIELD                  H0082810
C*****    WIDTH ALWAYS INCLUDES 6 EXTRA POSITIONS TO      7.2.3.6.2.1/45H0082820
C*****    PROVIDE FOR SIGN, DECIMAL POINT AND EXPONENT    7.2.3.6    /04H0082830
C*****    AND 1 POSITION FOR OPTIONAL DIGIT ZERO BEFORE   7.2.3.6.2.1/04H0082840
C*****    THE DECIMAL POINT)                                              H0082850
7127  FORMAT ( /25H  BEGIN D CONVERSION TEST/32H  EACH GROUP SHOULD BE IH0082860
     1DENTICAL)                                                         H0082870
      WRITE (NUVI,7127)                                                 H0082880
C*****  INPUT CARD  15                                                  H0082890
7128  FORMAT ( 2X, D8.1)                                                H0082900
      READ (IRVI,7128) DPAVD                                            H0082910
C*****  INPUT CARDS  16, 17, 18                                         H0082920
7129  FORMAT ( 2(D10.3), D14.7, D18.11/ 3(D21.14)/ 2(D16.9))            H0082930
      READ (IRVI,7129) MCA3D(1,2,2), AC1D(2), BC2D(3,1), AC1D(1),       H0082940
     1     22DVD, AC1D(3), DPBVD, MCA3D(1,2,1), BC2D(1,2)               H0082950
7130  FORMAT (/ 10H   0.1D+06)                                          H0082960
      WRITE (NUVI,7130)                                                 H0082970
      WRITE (NUVI,7128) DPAVD                                           H0082980
7131  FORMAT (/ 12H  -0.3340-04/ 2X, D10.3 / 2X, D10.3 //               H0082990
     1 16H   0.76576540+00/ 2X, D14.7 //                                H0083000
     2 20H1  0.123456789012D+10/ 2X, D18.11 //                          H0083010
     3 23H   0.987654321098765D-01/ 2X, D21.14/ 2X, D21.14 / 2X, D21.14//H0083020
     4 18H  -0.555555542D+03/ 2X, D16.9/ 2X, D16.9 )                    H0083030
      WRITE (NUVI,7131) MCA3D(1,2,2), AC1D(2), BC2D(3,1), AC1D(1)  ,    H0083040
     1     22DVD, AC1D(3), DPBVD, MCA3D(1,2,1), BC2D(1,2)               H0083050
C*****    FORMATTED READ AND WRITE STATEMENTS WITH LOGICAL  7.1.3.2.1/25H0083060
C*****    VARIABLES AND ARRAY ELEMENTS IN AN I/O LIST       7.2.3.7  /56H0083070
C*****    SOME L DESCRIPTORS ARE REPEATED.                                H0083080
7132  FORMAT(//25H  BEGIN L CONVERSION TEST/33H  LINES BELOW SHOULD BE IH0083090
     1DENTICAL)                                                         H0083100
C*****    L CONVERSION IS USED IN THE FORMAT STATEMENTS     7.2.3.3  /01H0083110
      WRITE (NUVI,7132)                                                 H0083120
C*****  INPUT CARD   19                                                 H0083130
7133  FORMAT (L4)                                                       H0083140
      READ (IRVI,7133) A2B(2,1)                                         H0083150
C*****  INPUT CARD   20                                                 H0083160
7134  FORMAT ( 2(L4), L3, L2, L3, 2(L1))                                H0083170
      READ (IRVI,7134) MCA1B(1), MCBVB, A2B(1,1), A3B(1,1,1), CVB,      H0083180
     1     DVB, A3B(1,2,1)                                              H0083190
7135  FORMAT (//24H     T   F   F  T T  FTF/ 2X, 3(L4), L3, L2, L3,     H0083200
     1  2(L1))                                                          H0083210
      WRITE (NUVI,7135) A2B(2,1), MCA1B(1), MCBVB, A2B(1,1), A3B(1,1,1),H0083220
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      1      CVB, DVB, A3B(1,2,1)                                          H0083230
C*****     FORMATTED READ AND WRITE STATEMENTS WITH ARRAY     7.1.3.2.1/26H0083240
C*****     NAMES OF ALL TYPES IN AN I/O LIST. THE NUMBER OF   7.1.3.2.1/39H0083250
C*****     ITEMS IN THE LIST IS VARIABLE. SOME FIELD          7.2.3.3  /01H0083260
C*****     DESCRIPTORS ARE REPEATED.                                      H0083270
7097  FORMAT (//32H  TEST UNSUBSCRIPTED ARRAY NAMES/35H  IN I/O LISTS. EH0083280
     1ACH GROUP OF LINES/22H  SHOULD BE IDENTICAL.)                        H0083290
      WRITE (NUVI,7097)                                                  H0083300
C*****  INPUT CARDS  21, 22                                               H0083310
7098  FORMAT(2X,8(F3.1),8F3.1/8(2(F3.1)))                                 H0083320
      READ (IRVI,7098) B1C,B3C                                           H0083330
C*****  INPUT CARDS  23, 24, 25                                           H0083340
7099  FORMAT(2X,4(F4.1)/4(D9.2),4D9.2/5(I2))                             H0083350
      READ (IRVI,7099) A2S, A3D, MCA1I                                   H0083360
C*****  INPUT CARDS  26, 27, 28                                           H0083370
7100  FORMAT(2X,4(D9.2)/27(F2.1)/5(L1),5L1)                              H0083380
      READ (IRVI,7100) A2D, A3S, A1B, A3B                                H0083390
C*****  INPUT CARDS  29, 30                                               H0083400
7101  FORMAT (2X,4(I2),5(D9.2)/4(2(F3.1)),8(I2),4(L1),5(F3.1))           H0083410
      READ (IRVI,7101) I2I, DPA1D, A2C, I3I, A2B, CMA1S                  H0083420
7102  FORMAT (/ 26H  9.91.19.92.29.93.39.94.4 / 2X,8(F3.1)/2X,8(F3.1))   H0083430
      WRITE (NUVI,7102) B1C                                              H0083440
7103  FORMAT (/ 18H  -9.9-9.9-9.9-9.9/2X,4(F4.1) //                      H0083450
     138H  -0.99D+01-0.99D+01-0.99D+01-0.99D+01/2X,4(D9.2)/2X,4(D9.2)// H0083460
     2 12H  9999999999/ 2X, 5(I2) //38H   0.99D+01 0.99D+01 0.99D+01 0.9H0083470
     39D+01/ 2X, 4(D9.2) // 37H  0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9/1X,H0083480
     4  9(F4.1)/ 1X, 9(F4.1)/ 1X,9(F4.1)/  4H1 TF/ 2X,2(L1))            H0083490
      WRITE (NUVI,7103) A2S, A3D, MCA1I, A2D, A3S, A1B                   H0083500
7104  FORMAT (/  10H  TFTFTFTF/  2X, 8(L1) // 10H  99999999/ 2X, 4(I2)//H0083510
     1 11H   0.99D+01/ 5(D11.2/)    /26H  9.95.59.96.69.97.79.98.8/2X,  H0083520
     28(F3.1)/2X,8(F3.1)/2X,8(F3.1)//18H  99999999999999999/2X,8(I2)//  H0083530
     3  6H  TFFT/ 2X, 4(L1) // 17H  9.99.99.99.99.9/2X, 5(F3.1))        H0083540
      WRITE (NUVI,7104) A3B, I2I, DPA1D, A2C, B3C, I3I, A2B, CMA1S       H0083550
C*****     FORMATTED WRITES TO TEST THAT LEADING BLANKS         7.2.3.6/51H0083560
C*****     ARE INSERTED IN THE OUTPUT FIELD WHEN THE OUTPUT               H0083570
C*****     PRODUCED IS SMALLER THAN THE FIELD WIDTH. (I, E,               H0083580
C*****     F AND D DESCRIPTORS ARE TESTED)                                H0083590
7090  FORMAT ( /30H  LEADING BLANK INSERTION TEST/40H  EACH PAIR OF LINEH0083600
     1S SHOULD BE IDENTICAL)                                             H0083610
      WRITE (NUVI,7090)                                                  H0083620
7096  FORMAT (/  3H  8/I3//4H  22/I4//5H   22/I5//6H    22/I6//          H0083630
     1 7H     22/I7// 5H  7.7/F5.1// 7H   8.88/F7.2/  9H1   9.999/      H0083640
     2  F9.3// 11H     5.4444/F11.4//  13H      6.55555/F13.5//          H0083650
     3 15H       7.123456/F15.6// 10H  0.21E+01/E10.2//                 H0083660
     4 12H   0.331E+02/E12.3// 14H    0.4441E+03/E14.4//                H0083670
     5 16H     0.55551E+04/E16.5// 18H      0.666661E+05/E18.6//        H0083680
     6 20H       0.1234567E+06/E20.7)                                   H0083690
      WRITE (NUVI,7096) MCA3I(1,2,3), IAC1I(3), NECVI, IAC1I(3),         H0083700
     1     IAC2I(2,3), ACVS, A1S(2), BCVS, HHCVS, CMCVS, CMBVS,         H0083710
     2     DCVS, AC1S(25), AC2S(4,1), AC1S(7), AC1S(8), CMAVS           H0083720
7105  FORMAT (/  9H  0.1D+00/D9.1// 10H   0.1D+00/D10.1//               H0083730
     1 11H    0.1D+00/D11.1// 12H     0.1D+00/D12.1//                   H0083740
     2 10H  1.0  5.5/ 2(F5.1) // 12H   9.9   5.5/ 2(F6.1) //            H0083750
     3 14H    9.9    5.5/ 2(F7.1) // 16H     1.0     5.5/ 2(F8.1))     H0083760
      WRITE (NUVI,7105) AC1D(3), ZZDVD, ZZDVD,                           H0083770
     1     ZZDVD, CHAVC, B3C(1,1,1), B3C(1,1,1), CHAVC                  H0083780
C*****     FORMATTED READ AND WRITE STATEMENT TO TEST THAT      7.2.3.7/03H0083790
C*****     OPTIONAL BLANKS MAY PRECEDE A LOGICAL INPUT FIELD    7.2.3.7/06H0083800
7138  FORMAT (  33H1 TEST LOGICAL FIELDS WITH BLANKS/33H  LINES BELOW SHH0083810
     1OULD BE IDENTICAL)                                                 H0083820
      WRITE (NUVI,7138)                                                  H0083830
C*****  INPUT CARD   31                                                   H0083840
7139  FORMAT ( L6, L4, L10, L5)                                          H0083850
      READ (IRVI,7139) AVB, MCA1B(2), A2B(1,2), A3B(2,1,2)               H0083860
7140  FORMAT (//27H        T    F          T     F/ 2X, L6, L4, L10, L5)  H0083870
      WRITE (NUVI,7140) AVB, MCA1B(2), A2B(1,2), A3B(2,1,2)              H0083880
C*****     FORMATTED READ AND WRITE TO TEST F DESCRIPTORS       7.2.3.1/31H0083890
C*****     WHERE D IS EQUAL TO ZERO AND WHERE W EQUALS D         7.2.3.4/40H0083900
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C*****    (2ND TEST APPLIES ONLY TO READ STMNTS.)                          H0083910
7108  FORMAT (//36H  TEST 0 = 0, W=0+1  (PAIRS OF LINES/ 28H  BELOW SHOUH0083920
     1LO BE IOENTICAL))                                                    H0083930
      WRITE (NUVI,7108)                                                    H0083940
C*****  INPUT CARD   32                                                   H0083950
7141  FORMAT (2X, F5.0, F5.5)                                              H0083960
      READ (IRVI,7141) ACVS, BVS                                           H0083970
7109  FORMAT (//7H  4444./2X, F5.0// 9H   .55555/ 3X,F6.5)                H0083980
      WRITE (NUVI,7109) ACVS, BVS                                          H0083990
C*****    FORMATS WITH G CONVERSIONS                                       H0084000
C*****  INPUT CARD   33                                                   H0084010
7142  FORMAT(  3(G11.4), 3G11.4)                                           H0084020
      READ (IRVI,7142) AC1S(14), AC1S(15), AC1S(16), AC1S(17)  ,           H0084030
     1                 AC1S(21), AC1S(22)                                H0084040
7143  FORMAT(/ 2X,23HBEGIN G CONVERSION     /2X,38HEACH PAIR OF LINES SHH0084050
     10ULD BE IDENTICAL//36H      .1235E+05       1235.      123.5/       H0084060
     2  G14.4,4X,2G11.4///3X,33H  12.35           1.235       .1235/      H0084070
     3  G14.4,4X,2G11.4)                                                  H0084080
      WRITE(NUVI,7143) AC1S(14), AC1S(15), AC1S(16), AC1S(17),             H0084090
     1                 AC1S(21), AC1S(22)                                H0084100
C*****    SCALE FACTOR APPLIED TO F,E,D,G DESCRIPTORS                      H0084110
C*****    ON READ, BUT NOT ON WRITE                                        H0084120
C*****  INPUT CARD   34                                                   H0084130
7144  FORMAT(2PF8.3,-2PE9.4,F9.4,0PG9.4,D9.4,-2PE9.4,F9.4,D9.4,2PG9.4)    H0084140
      READ(IRVI,7144)EP1S(16),EP1S(17),EP1S(18), EP1S(19),                 H0084150
     1   BC2D(1,4),EP1S(20),EP1S(22),BC2D(2,1),EP1S(23)                    H0084160
7145  FORMAT(22H1 SCALE FACTOR ON READ/31H  IN ORDER OF FORMAT OCCURRENCH0084170
     1E//40H  CARD    9876.54    98.7654E2      9876.54/                   H0084180
     2  40H  DESC     2PF8.3      -2PE9.4         F9.4/                   H0084190
     3  40H  TO BE  98.7654    .9877E+04    987654.00/                    H0084200
     4  4H  IS, F12.4, E12.4, F12.2//                                     H0084210
     5  40H  CARD    987.654    8647860-4    86.4786E2/                   H0084220
     6  40H  DESC     0PG9.4         09.4      -2PE9.4/                   H0084230
     7  40H  TO BE  987.654    .86480-02    .8648E+04/                    H0084240
     8  4H  IS, F12.3,012.4, E12.4//                                      H0084250
     9  40H  CARD    86.4786    8657.8700      9876.54/                   H0084260
     A  40H  DESC       F9.4         09.4       2PG9.4/                   H0084270
     B  40H  TO BE 8647.860    .86580+04         98.77/                   H0084280
     C4H  IS,F12.3, 012.4, G16.4)                                         H0084290
      WRITE(NUVI,7145) EP1S(16),EP1S(17),EP1S(18),EP1S(19),                H0084300
     1   BC2O(1,4),EP1S(20),EP1S(22),BC2D(2,1),EP1S(23)                    H0084310
C*****    SCALE FACTOR APPLIED TO  F, E, D, G  DESCRIPTORS                 H0084320
C*****    ON WRITE, BUT, NOT ON READ                                       H0084330
C*****  INPUT CARD   35                                                   H0084340
7152  FORMAT(F8.2,E9.4,F9.2,G9.3,09.0,E9.4,F9.4,D9.2,G9.4)                 H0084350
      READ(IRVI,7152) AC1S(1),AC1S(2),AC1S(3),AC1S(4),                     H0084360
     1  AC1O(4),AC1S(20),AC1S(23),AC1O(5),AC1S(24)                        H0084370
7153  FORMAT(/23H  SCALE FACTOR DN WRITE/31H  IN DROER DF FORMAT OCCURREH0084380
     1NCE//40H  CARD    9.87655    98.7654E2      9876.54/                 H0084390
     2  40H  DESC    2PF12.2     -2PE12.4        F12.4/                  H0084400
     3  40H  TO BE    987.65    .0099E+06      98.7654/                   H0084410
     4  4H  IS, 2PF12.2, -2PE12.4,F12.4//                                 H0084420
     5  40H  CARD    987.654    864786D-3    86.4786E2/                  H0084430
     6  40H  OESC    1PG12.2         D12.4     -2PE12.4/                 H0084440
     7  40H  TD BE 9.88E+02   8.6479D+02    .0086E+06/                   H0084450
     8   4H  IS, 1PG12.2, 012.4,  -2PE12.4//                             H0084460
     9  40H  CARD    86.4786    8657.86D0      9876.54/                  H0084470
     A  40H  DESC    2PF12.2      1PD12.4      2PG16.4/                  H0084480
     B  40H  TD BE   8647.86   8.6579D+03         9877./                 H0084490
     C   4H  IS, 2PF12.2, 1PD12.4, 2PG16.4//                             H0084500
     H28H  THE LAST TWD LINES DF EACH/24H  SET SHDULD BE THE SAME)        H0084510
      WRITE(NUVI,7153) AC1S(1),AC1S(2),AC1S(3),AC1S(4),                    H0084520
     1  AC1D(4),AC1S(20),AC1S(23),AC1O(5),AC1S(24)                        H0084530
C*****  I/O FORMAT RESCAN                                                 H0084540
C*****  INPUT CARDS  36, 37, 38                                           H0084550
7146  FORMAT( I1,I2,I3)                                                    H0084560
      READ(IRVI,7146) I2I,IAC1I                                            H0084570
7147  FORMAT(/ 37H  FORMAT RESCAN - THE SECOND GROUP DF/38H  EACH SET SHH0084580
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     1OULD AGREE WITH THE FIRST //15H   1   22   333/15H   4   55   666/H0084590
     115H   7   88   999/1H )                                          H0084600
      WRITE(NUVI,7147)                                                H0084610
7148  FORMAT(I4,I5,I6)                                                H0084620
      WRITE(NUVI,7148) I2I(1,1),I2I(2,1),I2I(1,2),I2I(2,2),IAC1I      H0084630
C*****  INPUT CAROS  39, 40                                           H0084640
7149  FORMAT(I4, 2(I1,1X,I2))                                         H0084650
      READ( IRVI,7149) I2I, IAC1I                                     H0084660
7150  FORMAT(/21H   2 **   4 $$   6 ((/7H   8 $$/1H )                 H0084670
      WRITE( NUVI,7150)                                               H0084680
7151  FORMAT (I4,3H **,1(I4,3H $$,(I4,3H (())))                       H0084690
      WRITE( NUVI,7151) I2I(2,1),I2I(2,2),IAC1I(2),IAC1I(4)           H0084700
C*****    ENO OF TEST SEGMENT 008                                     H0084710
C*****  WHEN EXECUTING ONLY SEGMENT 008 , THE STOP ANO ENO CARDS      H0084720
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN COLUMNS     H0084730
C*****  1 ANO 2 REMOVEO                                               H0084740
C=    STOP                                                            H0084750
C=    ENO                                                             H0084760
C*****************************************************************H0090010
C*****                                                               H0090020
C*****                          AFRMT - (009)                        H0090030
C*****                                                               H0090040
C*****************************************************************H0090050
C*****  GENERAL PURPOSE                                    ASA REFSH0090060
C*****    TO TEST SIMPLE FORMAT ANO FORMATTEO I/O STATEMENTS 7.1.3.2.2H0090070
C*****    WHICH USE A-CONVERSION SO THAT THIS FEATURE MAY    7.1.3.2.2H0090080
C*****    BE USEO IN OTHER SEGMENTS                          7.1.3.2.3H0090090
C*****                                                       7.2.3    H0090100
C*****                                                       7.2.3.8  H0090110
C*****  RESTRICTIONS OBSERVEO                                         H0090120
C*****  *  ALL FORMAT STATEMENTS ARE LABELED              7.2.3  /57H0090130
C*****  *  H AND X DESCRIPTORS ARE NEVER REPEATED         7.2.3.3/54H0090140
C*****  *  FIELO WIOTH IS NEVER ZERO                      7.2.3  /18H0090150
C*****  *  IF THERE IS AN I/O LIST, THE FORMAT STATEMENT   7.2.3.4/22H0090160
C*****     CONTAINS AT LEAST ONE FIELO DESCRIPTOR (OTHER               H0090170
C*****     THAN H OR X)                                               H0090180
C*****  *  ITEMS IN I/O LIST CORRESPONO TO FORMAT OESCRIPTORS 7.2.3.4/36H0090190
C*****  *  FIELO WIDTH NEVER EXCEEDEO BY OUTPUT           7.2.3.6/01H0090200
C*****                                                               H0090210
C*****    READ AND WRITE STATEMENTS FOR ENTIRE SEGMENT FOLLOW        H0090220
C*****                                                               H0090230
C*****    FORMATTED REAO ANO WRITE STATEMENTS WITH ALL   7.1.3.2.1/25H0090240
C*****    TYPES OF FIELDS. ONLY A (HOLLERITH) CONVERSION 7.2.3.8  /16H0090250
C*****    IS USEO IN THE FORMAT STATEMENTS. SOME A FORMAT 7.2.3.3  /01H0090260
C*****    OESCRIPTORS ARE REPEATED                                   H0090270
C INPUT DATA TO THIS SEG. CONSISTS OF 3 OATA CARO IMAGES IN COLS. 1 - 55H0090280
COL.      1-----------------------------31--------------------55      H0090290
CARO  1   B=EF-*JKL/()012TUVW+,.$X YZACOGHIPQRSMNO678(C)B2$9+A345     H0090300
CARD  2   QZ1*A                                                      H0090310
CARO  3   ABCOEFGHIJKLMNOPQRSTUVWXYZ                                 H0090320
C*****                                                               H0090330
C*****  S P E C I F I C A T I O N S   SEGMENT 009                     H0090340
C*****                                                               H0010240
C*****  WHEN EXECUTING ONLY SEGMENT 009, THE SPECIFICATION STATEMENTS H0010245
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=               H0010250
C*****  IN COLUMNS  1  AND  2  REMOVED.                              H0010255
C*****                                                               H0010260
C=    DIMENSION A1S(5),A3S(3,3,3),EP1S(33),IAC2I(2,7),AC2S(5,6)      H0010265
C=   1,MCA1I(5),CMA1S(5)                                             H0010270
C=    INTEGER BVI,MAVI,LAVI,MCA3I(2,3,3)                             H0010275
C=    REAL MVS,CVS,BCVS                                              H0010280
C=    LOGICAL MCA1B(7), A1B(2), A2B(2,2),A3B(2,2,2),AVB,EVB          H0010285
C*****                                                               H0010290
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS       H0090350
C*****                                                               H0070135
C*****  WHEN EXECUTING ONLY SEGMENT 009, THE FOLLOWING TWO STATEMENTS H0070140
C*****   NUVI = 6   ANO IRVI = 5   MUST HAVE                         H0070145
C*****  THE C= IN COL 1 ANO 2 REMOVEO.                               H0070150
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C=     NUVI = 6                                                                H0070155
C=     IRVI = 5                                                                H0070160
C*****                                                                         H0070165
      WRITE (NUVI,0090)                                                        H0090360
      READ (IRVI,0091) MVS, IAC2I(2,2),MAVI ,AC2S(4,2),MCA1I(1),LAVI,          H0090370
     1  A2B(1,2),A1B(2), BCVS, MCA1B(2), BVI, CVS,  EVB,A1S(2),EP1S(9),         H0090380
     2A3S(1,1,1),A3B(2,2,1),MCA3I(1,2,3), MCA3I(2,1,2), MCA3I(1,1,3)           H0090390
      WRITE (NUVI,0092) BVI, MVS, CVS, MAVI, EVB, MCA1I(1), EP1S(9),           H0090400
     1     A1S(2), A1B(2), MCA1B(2), IAC2I(2,2), AC2S(4,2),                    H0090410
     2     LAVI, BCVS, A2B(1,2), MCA3I(1,1,3), A3S(1,1,1),                     H0090420
     3     MCA3I(2,1,2), MCA3I(1,2,3), A3B(2,2,1)                              H0090430
C*****    FORMATTED READ AND WRITE TO TEST HOLLERITH FIELDS   7.2.3.8/22H0090440
C*****    WHERE FIELD WIDTH IS LESS THAN THE WORD LENGTH      7.2.3.8/28H0090450
C*****    CAPACITY OF THE MACHINE                                          H0090460
      WRITE (NUVI,0093)                                                        H0090470
      READ (IRVI,0094) CMA1S(2), CMA1S(1), LCCVI, AVB, BVI                     H0090480
      WRITE (NUVI,0095) BVI, AVB, CMA1S(2), LCCVI, CMA1S(1)                    H0090490
C*****    FORMATTED READ AND WRITE TO TEST HOLLERITH FIELDS   7.2.3.8/20H0090500
C*****    WHERE FIELD WIDTH IS GREATER THAN THE WORD LENGTH   7.2.3.8/25H0090510
C*****    CAPACITY OF THE MACHINE                                          H0090520
      WRITE (NUVI,0096)                                                        H0090530
      READ (IRVI,0097) MRRVI                                                   H0090540
      WRITE (NUVI,0098) MRRVI                                                  H0090550
C*****                                                                         H0090560
C*****                                                                         H0090570
C*****    FORMAT STATEMENTS FOR THE ENTRIRE SEGMENT FOLLOW                     H0090580
C*****    FORMATS TO TEST A CONVERSION. FIELD WIDTH IS        7.2.3.8/16H0090590
C*****    FROM 1 TO 4 CHARACTERS. SOME A DESCRIPTORS ARE      7.2.3.3/01H0090600
C*****    REPEATED.                                                        H0090610
0090  FORMAT (1H1,1X,26HAFRMT - (009) A-CONVERSION//2X,                        H0090620
     117HASA REF - 7.2.3.8//40H  EACH PAIR OF LINES SHOULD BE IDENTICAL/H0090630
     28X,26HFOR COMPUTERS STORING FOUR/8X,27HOR MORE CHARACTERS PER WORDH0090640
     3)                                                                       H0090650
0091  FORMAT ( 2(A1), 2(A2), 3(A3), 3(A4), A1, A2, A3, A4, 6(A3))             H0090660
0092  FORMAT (// 29H  ABCDEFGHIJKLMNOPQRSTUVWX YZ/ 2X, 2(A1), 2(A2),          H0090670
     1  3(A3), 3(A4)//12H  =-*/()+,.$/ 2X, A1, A2, A3, A4 //                  H0090680
     2  20H  0123456789+AB2$(C)/ 2X, 6 A3 )                                   H0090690
C*****    FORMATS TO TEST A CONVERSION WHERE FIELD WIDTH      7.2.3.8/22H0090700
C*****    IS LESS THAN THE WORD LENGTH CAPACITY OF MACHINE    7.2.3.8/28H0090710
0093  FORMAT (//35H  TEST A CONVERSION - ADDING BLANKS/40H  EACH PAIR OFH0090720
     1 LINES SHOULD BE IDENTICAL)                                             H0090730
0094  FORMAT ( 5(A1))                                                          H0090740
0095  FORMAT (//4H   A  / 3X, A3//4H   */ 3X, A3  //4H   Q/ 3X, A3//          H0090750
     1 4H   1/3X, A3 //4H   Z/ 3X,A3)                                         H0090760
C*****    FORMATS TO TEST A CONVERSION WHERE FIELD WIDTH      7.2.3.8/20H0090770
C*****    IS GREATER THAN WORD LENGTH CAPACITY OF MACHINE     7.2.3.8/25H0090780
0096  FORMAT(/25H  TEST A FIELD TRUNCATION/37H  2ND LINE SHOULD PARTIALLH0090790
     1Y MATCH 1ST)                                                            H0090800
0097  FORMAT ( A26 )                                                           H0090810
0098  FORMAT (// 28H  ABCDEFGHIJKLMNOPQRSTUVWXYZ/ 2X, A26)                    H0090820
C*****    END OF TEST SEGMENT 009                                          H0090830
C*****  WHEN EXECUTING ONLY SEGMENT 009 , THE STOP AND END CARDS           H0090840
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN COLUMNS          H0090850
C*****  1 AND 2 REMOVED                                                    H0090860
C=    STOP                                                                     H0090870
C=    END                                                                      H0090880
C*************************************************************************H0100010
C*****                                                                         H0100020
C*****                          DATA2 - (010)                                  H0100030
C*****                                                                         H0100040
C*************************************************************************H0100050
C*****                                                                         H0100060
C*****  GENERAL PURPOSE                                                        H0100070
C*****    TO TEST CONTENTS OF VARIABLES THAT WERE FORMED BY                    H0100080
C*****    DATA STATEMENTS IN SEG. DATA1 - (003)                                H0100090
C*****                                                                         H0100100
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.            H0100110
C*****                                                                         H0100120
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C*****  WHEN EXECUTING ONLY SEGMENT 010, THE FOLLOWING STATEMENT          H0070170
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1  AND  2 REMOVED.         H0070175
C=     NUVI = 6                                                           H0070180
C*****                                                                    H0070185
       WRITE (NUVI,100)                                                   H0100130
100    FORMAT (1H1,1X,             32HDATA2 - (010) DATA STATEMENT USE/   H0100140
      A   /2X,17HASA REFS. - 7.2.2//2X,7HRESULTS)                         H0100150
       WRITE (NUVI,101)                                                   H0100160
101    FORMAT(/35H  LINE 1 OF EACH GROUP IS HOLLERITH/36H  INFORMATION. TH0100170
      AEST IS SUCCESSFUL IF/37H  EACH GROUP CONTAINS THE SAME VALUES)     H0100180
       WRITE (NUVI,102) I1I(1),    I1I(2), IAC2I(1,5), IAC2I(1,3),        H0100190
      A                 MCA3I(1,2,1), MCA3I(2,2,2),  I1I(3),  I1I(4),    H0100200
      B                 IAC2I(2,5), IAC2I(2,6), MCA3I(2,1,1),           H0100210
      C                 MCA3I(1,2,2), I1I(5), IAC2I(2,4), MCA3I(1,1,2), H0100220
      D                 AVI                                             H0100230
102    FORMAT    ( /25X,1H0/4(I26/)//                                     H0100240
      A             24X,2H10/4(I26/)//                                  H0100250
      B             23X,3H246/4(I26/)//                                 H0100260
      C             22X,4H-750/4(I26/))                                 H0100270
       WRITE (NUVI,103) EP1S(8), EP1S(10), EP1S(13), AC2S(2,6),         H0100280
      A                 AC2S(1,6),AC3S(1,1,1),EP1S(11),AC2S(5,3),       H0100290
      B                 AC2S(3,6), AC2S(5,2), AC3S(1,1,2), AC2S(4,6),   H0100300
      C                 EP1S(12), AC2S(5,5), AC2S(5,6), JVS             H0100310
103    FORMAT    ( /22X,4H0.00/4(F26.2/)//                                H0100320
      A             20X,6H246.15/4(F26.2/)//                            H0100330
      B             19X,7H3546.74/4(F26.2/),                            H0100340
      C         1H1,18X,7H-750.05/4(F26.2/))                            H0100350
       WRITE (NUVI,104)ADSVC, LL1C(29), LN3C(9,1,2), LN3C(8,2,1),       H0100360
      A                 BCVC, LL1C(30), LM2C(8,4), LN3C(8,2,2),         H0100370
      B                 CHEVC, LL1C(31), LM2C(8,3), LN3C(9,1,1),        H0100380
      C                 DCVC, LL1C(32), LM2C(8,2), LN3C(8,1,2)          H0100390
104    FORMAT    ( /9X,17H 11.1        22.22/4(F14.1,F12.2/)//           H0100400
      A             8X,18H-34.50         -6.78/4(F14.2,F12.2/)//        H0100410
      B             8X,18H 10.00        -20.00/4(F14.2,F12.2/)//        H0100420
      C             5X,21H  -200.00       4000.00/4(F14.2,F12.2/))      H0100430
       WRITE (NUVI,105)  AVD, A1D(1), DPA2D(1,1), MCA3D(1,1,1),         H0100440
      A                 BVD, A1D(2), DPA2D(2,1), MCA3D(1,1,2),          H0100450
      B                 CVD, A1D(3),DPA2D(1,2), MCA3D(1,3,1),           H0100460
      C                 DVD, A1D(4), DPA2D(2,2), MCA3D(1,4,1)           H0100470
105    FORMAT    ( /16X,10H-0.295D+05/4(D26.3/)//                         H0100480
      A             11X,15H0.345678901D+05/4(D26.9/)//                  H0100490
      B             13X,13H0.1122335D-02/4(D26.7/),                     H0100500
      C         1H1,17X,8H0.34D+13/4(D26.2/))                           H0100510
       WRITE (NUVI,106) MAVB, MCA1B(6), GH2 B(1,1), GI3B(1,1,1),        H0100520
      A                 MBVB, MCVB, MCA1B(7), GH2B(1,2), GG1B(1),       H0100530
      B                 EP1S(15), GI3B(1,1,2),                          H0100540
      C                 EP1S(14), AC3S(1,1,3), IAC2I(1,4)               H0100550
106    FORMAT    (//20X,4H   T/  4(L24/)//                               H0100560
      A             20X,4H   F/  4(L24/)//                              H0100570
      B             22X,2HAD /2(22X,A2/)/                               H0100580
      C             22X,2HNO /  22X,A2//                                H0100590
      D             22X,2HBC /  22X,A2//                                H0100600
      E             22X,2H*= /  22X,A2//                                H0100610
      F             22X,2H P /  22X,A2)                                 H0100620
C*****    END OF SEGMENT 010                                            H0100630
C*****  WHEN EXECUTING ONLY SEGMENTS 003 AND 010, THE  STOP  AND  END    H0100640
C*****  CARDS WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                 H0100650
C*****  IN COLUMNS  1  AND  2  REMOVED                                   H0100660
C=     STOP                                                             H0100670
C=     END                                                              H0100680
C*************************************************************************H0110010
C*****                                                                    H0110020
C*****                          AASGN - (011)                            H0110030
C*****                                                                    H0110040
C*************************************************************************H0110050
C*****  GENERAL PURPOSE                                      ASA REF H0110060
C*****  * TO TEST VERY SIMPLE ARITHMETIC ASSIGNMENT           7.1.1.1 H0110070
C*****    STATEMENTS, SO THAT THIS STATEMENT MAY BE                      H0110080
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C*****    USED IN LATER SEGMENTS                                        H0110090
C*****  * TO TEST THAT ALL TYPES OF INTEGER AND REAL CONSTANTS    5.1.1H0110100
C*****    MAY BE FORMED                                          5.1.1.1H0110110
C*****                                                           5.1.1.2H0110120
C*****  GENERAL COMMENTS                                              H0110130
C*****  * ONLY REAL AND INTEGER TYPES ARE INCLUDED IN                 H0110140
C*****    THIS SEGMENT - NO MIXING OF TYPES                           H0110150
C*****  * IN ORDER NOT TO EXCEED THE WORD LENGTH CAPACITY OF          H0110160
C*****    SOME COMPUTERS, INTEGER CONSTANTS ARE LIMITED TO            H0110170
C*****    5 DIGITS AND REAL CONSTANTS TO 7 DIGITS.                    H0110180
C*****                                                                H0110190
C*****  S P E C I F I C A T I O N S  SEGMENT 011                      H0110200
C*****                                                                H0010295
C*****  WHEN EXECUTING ONLY SEGMENT 011, THE SPECIFICATION STATEMENT  H0010300
C*****  WHICH APPEARS AS A COMMENT MUST HAVE THE C= REMOVED            H0010305
C=     DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),A2S(2,2)      H0010310
C*****                                                                H0010315
C*****  O U T P U T  T A P E  ASSIGNMENT - NO INPUT DATA              H0110210
C*****                                                                H0070190
C*****  WHEN EXECUTING ONLY SEGMENT 011, THE FOLLOWING STATEMENT      H0070195
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS  1 AND 2  REMOVED.      H0070200
C*****                                                                H0070205
C=     NUVI = 6                                                       H0070210
C*****                                                                H0070215
       WRITE (NUVI,110)                                               H0110220
110    FORMAT (1H1,1X, 37HAASGN - (011) SIMPLE REAL AND INTEGER/10X,32HARH0110230
      1ITHMETIC ASSIGNMENT STATEMENTS/2X,16HASA REF. - 7.1.1//34H  LINE 1H0110240
      2 OF EACH PAIR IS HOLLERITH/13H  INFORMATION//17H  INTEGER RESULTS)H0110250
C*****    HEADER FOR SEGMENT 011 WRITTEN                              H0110260
C*****    TEST ASSIGNMENT OF UNSIGNED INTEGER CONSTANTS       7.1.1.1/40H0110270
C*****    TO VARIABLES                                        5.1.1.1/15H0110280
       MRRVI = 1                                                      H0110290
       JACVI = 12345                                                  H0110300
       KBCVI = 000                                                    H0110310
C*****    TEST ASSIGNMENT OF SIGNED INTEGER CONSTANTS TO      7.1.1.1/40H0110320
C*****    VARIABLES                                             5.1.1/11H0110330
       MCAVI = +2                                                     H0110340
       LCCVI = -3                                                     H0110350
       MDCVI = - 8765                                                 H0110360
       NECVI = + 6912                                                 H0110370
C*****    TEST ASSIGNMENT OF UNSIGNED INTEGER CONSTANTS       7.1.1.1/40H0110380
C*****    TO ARRAYS                                           5.1.1.1/15H0110390
       IAC1I(1)    = 0                                                H0110400
       IAC2I(2,1) = 02468                                             H0110410
       IAC2I(2,2) = 00                                                H0110420
       IAC1I(3)    = 4444                                             H0110430
C*****    TEST ASSIGNMENT OF SIGNED INTEGER CONSTANTS         7.1.1.1/40H0110440
C*****    TO ARRAYS                                             5.1.1/11H0110450
       IAC2I(1,1) = +45                                               H0110460
       IAC1I(4)    = + 4321                                           H0110470
       IAC1I(2)    = -23                                              H0110480
       IAC2I(1,2) = - 3123                                            H0110490
C*****    TEST ASSIGNMENT OF UNSIGNED REAL CONSTANTS          7.1.1.1/40H0110500
C*****    TO VARIABLES (BASIC REAL CONSTANTS)                 5.1.1.2/18H0110510
       ACVS  = 1.0                                                    H0110520
       BCVS  = 358.6724                                               H0110530
C*****    TEST ASSIGNMENT OF SIGNED REAL CONSTANTS            7.1.1.1/40H0110540
C*****    TO VARIABLES (BASIC REAL CONSTANTS)                 5.1.1.2/18H0110550
C*****                                                          5.1.1/11H0110560
       CCVS  = -2.0                                                   H0110570
       OCVS  = +3.0                                                   H0110580
       ECVS = -2714.250                                               H0110590
       FCVS = +29.30542                                               H0110600
C*****    TEST ASSIGNMENT OF UNSIGNED REAL CONSTANTS          7.1.1.1/40H0110610
C*****    TO ARRAYS (BASIC REAL CONSTANTS)                    5.1.1.2/18H0110620
C*****                                                          5.1.1/11H0110630
       AC1S(2)    = 86.27                                             H0110640
       AC2S(1,2) = 1034.2                                             H0110650
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      AC1S(1)    = 0.0                                                  H0110660
      AC2S(1,1) = 0.00000                                               H0110670
C*****    TEST ASSIGNMENT OF SIGNED REAL CONSTANTS          7.1.1.1/40H0110680
C*****    TO ARRAYS (BASIC REAL CONSTANTS)                  5.1.1.2/18H0110690
C*****                                                        5.1.1/11H0110700
      AC2S(2,2) = +345.678                                              H0110710
      AC1S(3)    = -2.5                                                 H0110720
      AC2S(2,1) = -5.66                                                 H0110730
      AC1S(4)    = +1.111111                                            H0110740
C*****    TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL       5.1.1.2/22H0110750
C*****    CONSTANTS WITH NO DECIMAL DIGITS TO BOTH                       H0110760
C*****    VARIABLES AND ARRAYS                                           H0110770
      GCVS   =  1.                                                      H0110780
      HCVS   = -2.                                                      H0110790
      AADVS = +3.                                                       H0110800
      AC2S(3,1) =  4.                                                   H0110810
      AC2S(1,3) = +5.                                                   H0110820
      AC1S(5)    = -6.                                                  H0110830
C*****    TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL       5.1.1.2/22H0110840
C*****    CONSTANTS WITH NO INTEGER PART TO BOTH                         H0110850
C*****    VARIABLES AND ARRAYS                                           H0110860
      BBDVS = .0                                                        H0110870
      CCDVS = +.23                                                      H0110880
      DDDVS = -.716                                                     H0110890
      AC1S(6)    = -.7                                                  H0110900
      AC2S(4,1) = .81                                                   H0110910
      AC1S(7)    = +.9                                                  H0110920
C*****    TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL       5.1.1.2/25H0110930
C*****    CONSTANTS WITH UNSIGNED AND SIGNED DECIMAL        5.1.1.2/32H0110940
C*****    EXPONENTS TO BOTH VARIABLES AND ARRAYS                         H0110950
      EEDVS =  1.05E02                                                  H0110960
      FFDVS = -7.6E1                                                    H0110970
      GGDVS = +332.4E0                                                  H0110980
      HHDVS = 51.32E-1                                                  H0110990
      OODVS = +5.34E-3                                                  H0111000
      PPDVS = -14.19E-2                                                 H0111010
      QQDVS = -9.9E+2                                                   H0111020
      RRDVS = +10.5210E+3                                               H0111030
      SSDVS = 4.56E+1                                                   H0111040
      AC2S(1,4) = 665.2E0                                               H0111050
      AC1S(11) =-52.9E01                                                H0111060
      AC1S(9) = +78.564E2                                               H0111070
      AC2S(5,1) = -3.4567E+3                                            H0111080
      AC2S(1,5) = 61.62E+2                                              H0111090
      AC1S(10) = +0.023E+1                                              H0111100
      AC1S(8) =  94.333E-1                                              H0111110
      AC1S(12) = +0.3524E-2                                             H0111120
      AC2S(3,2) = -743.2E-3                                             H0111130
C*****    TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL       5.1.1.2/22H0111140
C*****    CONSTANTS (NO DECIMAL PART) WITH DECIMAL          5.1.1.2/26H0111150
C*****    EXPONENTS TO BOTH VARIABLES AND ARRAYS                         H0111160
      TTDVS = 1.E0                                                      H0111170
      UUDVS = +123.E2                                                   H0111180
      VVDVS = -11.E3                                                    H0111190
      WWDVS = 144.E-1                                                   H0111200
      XXDVS = -12.E-2                                                   H0111210
      YYDVS = +3645.E-3                                                 H0111220
      ZZDVS = 1.E+4                                                     H0111230
      CMAVS = -200.E+1                                                  H0111240
      CMBVS = +99.E+2                                                   H0111250
      AC1S(13) = +0.E00                                                 H0111260
      AC2S(2,5) = -1512.E2                                              H0111270
      AC2S(4,3) = 214.E3                                                H0111280
      AC1S(15) = 34.E-1                                                 H0111290
      AC1S(14) = -4.E-2                                                 H0111300
      AC2S(3,4) = +53214.E-4                                            H0111310
      AC2S(4,4) = +6.E+3                                                H0111320
      AC2S(2,3) = 72.E+4                                                H0111330
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      AC1S(16) = -813.E+1                                              H0111340
C*****    TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL          5.1.1.2/22H0111350
C*****    CONSTANTS (NO INTEGER PART) WITH DECIMAL             5.1.1.2/26H0111360
C*****    EXPONENTS TO BOTH VARIABLES AND ARRAYS                          H0111370
      CMCVS = .234E0                                                   H0111380
      CMDVS = -.3E2                                                    H0111390
      CMEVS = +.44E1                                                   H0111400
      CMFVS = .36E-3                                                   H0111410
      CMGVS = +.9E-4                                                   H0111420
      CMHVS = -.10E-2                                                  H0111430
      CMOVS = .777E+1                                                  H0111440
      CMPVS = -.29E+3                                                  H0111450
      CMQVS = +.04E+2                                                  H0111460
      AC1S(17) = .90E1                                                 H0111470
      AC2S(4,2) = +.810E0                                              H0111480
      AC1S(19) = -.7E3                                                 H0111490
      AC2S(3,3) = .62E+3                                               H0111500
      AC1S(21) = +.5310E+1                                             H0111510
      A2S(1,2) = -.442E+2                                              H0111520
      AC1S(18) = .3E-4                                                 H0111530
      AC2S(2,4) = +.25E-03                                             H0111540
      A2S(2,1) = -.163E-2                                              H0111550
C*****    TEST ASSIGNMENT OF UNSIGNED AND SIGNED REAL          5.1.1.2/34H0111560
C*****    CONSTANTS (FORMED BY PLACING DECIMAL EXPONENT                   H0111570
C*****    AFTER INTEGER CONSTANT) TO BOTH VARIABLES AND                   H0111580
C*****    ARRAYS                                                          H0111590
      AVS = 709E3                                                      H0111600
      BVS = +81842E0                                                   H0111610
      CVS = -9E5                                                       H0111620
      DVS = 627E+2                                                     H0111630
      EVS = +53E+3                                                     H0111640
      FVS = -4E+04                                                     H0111650
      GVS = 1463E-2                                                    H0111660
      HVS = +2E-3                                                      H0111670
      PVS = -355E-1                                                    H0111680
      AC1S(24) = 29E5                                                  H0111690
      AC1S(20) = +4072E3                                               H0111700
      AC2S(5,4) = -61835E2                                             H0111710
      AC2S(3,5) = 829E+1                                               H0111720
      AC1S(22) = +03E+2                                                H0111730
      AC1S(25) = -1E+3                                                 H0111740
      AC2S(4,5) = 3404E-4                                              H0111750
      A2S(2,2) = +55E-5                                                H0111760
      AC1S(23) = -761E-1                                               H0111770
C*****    VERIFY CORRECTNESS OF ASSIGNMENT BY WRITING                     H0111780
C*****    THE INFORMATION                                                 H0111790
      WRITE (NUVI,111) MRRVI, JACVI, KBCVI, MCAVI, LCCVI, MDCVI, NECVI, H0111800
     1      (IAC1I(IVI),IVI=1,4),((IAC2I(IVI,JVI),IVI=1,2),JVI=1,2)     H0111810
      WRITE (NUVI,112)                                                 H0111820
      WRITE (NUVI,113) ACVS, BCVS, CCVS, DCVS, ECVS, FCVS, AC1S(2),    H0111830
     1                 AC2S(1,2), AC1S(1), AC2S(1,1), AC2S(2,2),       H0111840
     2                 AC1S(3), AC2S(2,1), AC1S(4), GCVS, HCVS,        H0111850
     3                 AADVS, AC2S(3,1)                                H0111860
      WRITE (NUVI,114) AC2S(1,3), AC1S(5), BBDVS, CCDVS, DDDVS, AC1S(6),H0111870
     1                 AC2S(4,1), AC1S(7), EEDVS, FFDVS, GGDVS, HHDVS, H0111880
     2                 OODVS, PPDVS, QQDVS, RRDVS, SSDVS               H0111890
      WRITE (NUVI,115) AC2S(1,4), AC1S(11), AC1S(9), AC2S(5,1),        H0111900
     1                 AC2S(1,5), AC1S(10), AC1S(8), AC1S(12),         H0111910
     2                 AC2S(3,2), TTDVS, UUDVS, VVDVS, WWDVS, XXDVS,   H0111920
     3                 YYDVS                                           H0111930
      WRITE (NUVI,116) CMAVS, CMBVS, AC1S(13), AC2S(2,5), AC2S(4,3),   H0111940
     1                 AC1S(15), AC1S(14), AC2S(3,4), AC2S(4,4),       H0111950
     2                 AC2S(2,3), AC1S(16), CMCVS, CMDVS, CMEVS,ZZDVS  H0111960
      WRITE (NUVI,117) CMFVS, CMGVS, CMHVS, CMOVS, CMPVS, CMQVS,       H0111970
     1                 AC1S(17), AC2S(4,2), AC1S(19), AC2S(3,3),       H0111980
     1                 AC1S(21),A2S(1,2),AC1S(18), AC2S(2,4),A2S(2,1)  H0111990
      WRITE (NUVI,118) AVS, BVS, CVS, DVS, EVS, FVS, GVS, HVS, PVS,    H0112000
     1                 AC1S(24), AC1S(20), AC2S(5,4), AC2S(3,5),       H0112010
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     2                  AC1S(22),AC1S(25),AC2S(4,5),A2S(2,2)                H0112020
     3                  AC1S(23)                                            H0112030
111   FORMAT(/7X,1H1,7X,5H12345,13X,1H0/1X,I7,5X,I7,7X,I7//                  H0112040
     1 7X, 1H2, 10X, 2H-3,8X, 6H -8765/1X, I7, 5X, I7,  7X, I7//            H0112050
     2 3X, 5H 6912, 11X, 1H0, 11X, 3H-23/ 1X, I7, 5X, I7, 7X,I7//          H0112060
     3 4X, 4H4444, 7X, 5H 4321, 12X, 2H45/ 1X, I7, 5X, I7, 7X, I7//        H0112070
     4 4X, 4H2468, 6X, 6H -3123, 13X, 1H0/ 1X, I7, 5X, I7, 7X, I7)         H0112080
112   FORMAT (/14H  REAL RESULTS)                                           H0112090
113   FORMAT(/3X,3H1.0, 10X, 8H358.6724, 6X, 4H-2.0/1X,F5.1,6X,F12.4,2X,H0112100
     1 F8.1//3X,3H3.0,8X,9H-2714.250,7X,8H29.30542/1X,F5.1,6X,F11.3,3X, H0112110
     2 F12.5//2X,5H86.27,8X,6H1034.2,10X,3H0.0/1X,F6.2,5X,F9.1,5X,F8.1//H0112120
     3 3X, 3H0.0, 10X,7H345.678,7X, 4H-2.5/1X,F5.1,6X,F11.3,3X,F8.1//    H0112130
     4 2X,5H-5.66,11X,8H1.111111,5X,3H1.0/1X,F6.2,5X,F14.6,F8.1//        H0112140
     5 2X,4H-2.0,12X,3H3.0,10X,3H4.0/1X,F5.1,6X,F9.1,5X,F8.1)            H0112150
114   FORMAT(/3X,3H5.0,11X,4H-6.0,10X,3H0.0/1X,F5.1,6X,F9.1,5X,F8.1//    H0112160
     1 3X,4H0.23,10X,6H-0.716,7X,4H-0.7/1X,F6.2,5X,F11.3,3X,F8.1//       H0112170
     2 3X,4H0.81,11X,3H0.9/1X,F6.2,5X,F9.1/1H1,2X,9H0.105E+03,3X,        H0112180
     3 9H-0.76E+02,5X,10H0.3324E+03/E12.3,E12.2,E15.4//                  H0112190
     4 3X,10H0.5132E+01,3X,9H0.534E-02,3X,11H-0.1419E+00/E13.4,E12.3,    H0112200
     5 E14.4//2X,9H-0.99E+03,5X,12H0.105210E+05,10H 0.456E+02/E11.2,     H0112210
     6 E17.6,E10.3)                                                      H0112220
115   FORMAT(/3X,10H0.6652E+03,2X,10H-0.529E+03,4X,11H0.78564E+04/E13.4,H0112230
     1 E12.3,E15.5//2X,12H-0.34567E+04,2X,10H0.6162E+04,3X,8H0.23E+00/   H0112240
     2 E14.5,E12.4,E11.2//3X,11H0.94333E+01,2X,10H0.3524E-02,2X,         H0112250
     3 11H-0.7432E+00/E14.5,E12.4,E13.4//3X,7H0.1E+01,6X,9H0.123E+05,    H0112260
     4 3X,9H-0.11E+05/E10.1,E15.3,E12.2//3X,9H0.144E+02,3X,9H-0.12E+00,  H0112270
     5 5X,10H0.3645E+01/E12.3,E12.2,E15.4)                               H0112280
116   FORMAT(/12H  -0.200E+04,4X,8H0.99E+04,5X,7H0.0E+00/E12.3,E12.2,     H0112290
     1 E12.1//2X,11H-0.1512E+06,3X,9H0.214E+06,4X,8H0.34E+01/E13.4,      H0112300
     2 E12.3,E12.2//2X,8H-0.4E-01,6X,11H0.53214E+01,2X,7H0.6E+04/E10.1,  H0112310
     3 E17.5,E9.1//3X,8H0.72E+06,4X,10H-0.813E+04,4X,9H0.234E+00/E11.2,  H0112320
     4 E14.3,E13.3//2X,8H-0.3E+02,6X,8H0.44E+01,5X,7H0.1E+05/E10.1,      H0112330
     5 E14.2,E12.1)                                                      H0112340
117   FORMAT(/3X,8H0.36E-03,5X,7H0.9E-04,5X,9H-0.10E-02/E11.2,E12.1,      H0112350
     1 E14.2//3X,9H0.777E+01,3X,9H-0.29E+03,5X,7H0.4E+01/E12.3,E12.2,    H0112360
     2 E12.1//3X,8H0.90E+01,5X,9H0.810E+00,3X,8H-0.7E+03/E11.2,E14.3,    H0112370
     3 E11.1//3X,8H0.62E+03,5X,10H0.5310E+01,2X,10H-0.442E+02/E11.2,     H0112380
     4 E15.4,E12.3//3X,7H0.3E-04,6X,8H0.25E-03,4X,10H-0.163E-02/E10.1,   H0112390
     5 E14.2,E14.3/1H1)                                                  H0112400
118   FORMAT(3X,9H0.709E+06,4X,11H0.81842E+05,1X,8H-0.9E+06/E12.3,E15.5,H0112410
     1 E9.1//3X,9H0.627E+05,4X,8H0.53E+05,4X,8H-0.4E+05/E12.3,E12.2,     H0112420
     2 E12.1//3X,10H0.1463E+02,3X,7H0.2E-02,5X,10H-0.355E+02/E13.4,      H0112430
     3 E10.1,E15.3//3X,8H0.29E+07,5X,10H0.4072E+07,2X,12H-0.61835E+07/   H0112440
     4 E11.2,E15.4,E14.5//3X,9H0.829E+04,4X,7H0.3E+03,5X,8H-0.1E+04/     H0112450
     5 E12.3,E11.1,E13.1//3X,10H0.3404E+00,3X,8H0.55E-03,4X,10H-0.761E+0H0112460
     62/E13.4,E11.2,E14.3)                                               H0112470
C*****    END OF TEST SEGMENT 011                                        H0112480
C*****  WHEN EXECUTING ONLY SEGMENT 011, THE STOP  AND  END CARDS        H0112490
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H0112500
C*****  IN COLUMNS  1  AND  2  REMOVED                                   H0112510
C=    STOP                                                              H0112520
C=    END                                                               H0112530
      STOP                                                              H9999995
      END                                                               H9999999
 SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.    ID 2
 OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT     ID 4
 DATE, INSTALLATION NAME
       DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT     ID 6
  999
  555554444
  666  777777  8
  333333111112222222255555444444444444
  7.7123456.7
  8.889.9997.123456
  5.44446.5555533.133.133.133.1444.1
  5555.15555.1  66666.166666.1  44.22
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  2.12.12.12.12.1666.3334.3334.3334.333
-0.1E+01+0.22E-01 0.333E+02 0.4444E+03-0.55555E-03+0.666666E+00+0.9876543E+12
1.05.522.066.633.123455.0789
123.00456.88 0.123E+01  +0.987+1 -0.2345+02 -0.6879E+2+0.7E+03 0.4E+03
 0.9876543E-04+0.1357913E-04
19.34+0.2468E+02    +.765+287.643.96 0.5407E+0243.96+0.5407E+0243.96    0.5407+2
  +0.1D+06
-0.334D-04    -.334-4 +0.7657654D00 0.12345678901D+10
 +0.98765432109876D-1+0.98765432109876D-01     .98765432109876-1
 -.555555542D+03  -0.555555542+3
TABC
FDEFFGHIT*+T1F$)TF
  9.91.19.92.29.93.39.94.49.91.19.92.29.93.39.94.4
9.95.59.96.69.97.79.98.89.95.59.96.69.97.79.98.8
  -9.9-9.9-9.9-9.9
-0.99D+01-0.99D+01-0.99D+01-0.99D+01-0.99D+01 -.99D+01  -.99+01    -.99+1
9999999999
  +0.99D+01 0.99D+01  +.99D01    +.99D1
.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9.9
TFTFTFTFTF
  99999999+0.99D+01 0.99D+01 0.99D+01+0.99D+01     .99D1
9.95.59.96.69.97.79.98.899999999999999999TFFT9.99.99.99.99.9
     T   F          T    F
  4444.55555
123.45678E2  1234.5678  123.45678  12.345678  1.2345678  .12345678
 9876.5498.7654E2 9876.54   987.654864786D-486.4786E286.4786  8657.86D0  9876.54
 9.8765598.7654E2  9876.54  987.654864786D-386.4786E286.4786  8657.86D0  9876.54
1223335448886112 22
4556662334449661 11
7889993775558997 77
11112 334 559 880 11
6 778 995 441 222 00
B=EF-*JKL/()012TUVW+,.$X YZACDGHIPQRSMNO678(C)B2$9+A345
QZ1*A
ABCDEFGHIJKLMNOPQRSTUVWXYZ
C*****     PART2     ************************************************************H0000400
C*****                                                                           H0000405
C*****     ANSI FORTRAN   (X3.9-1966)      TEST PROGRAMS                         H0000410
C*****                                                                           H0000415
C*****     PREPARED BY THE NATIONAL BUREAU OF STANDARDS       VERSION 3          H0000420
C*****                                                                           H0000425
C*****     JUNE 1973                                                             H0000430
C*****                                                                           H0000435
C*****     PART 2  OF 14 PARTS                                                   H0000440
C*****                                                                           H0000445
C*****     SEGMENTS INCLUDED                                                     H0000450
C*****                                                                           H0000455
C*****       DASGN - 013 SIMPLE D.P. ASSIGNMENT STATEMENTS                       H0000460
C*****                                                                           H0000465
C*****       CASGN - 015 SIMPLE COMPLEX ASSIGNMENT STATEMENTS                    H0000470
C*****                                                                           H0010400
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN                    H0010405
C*****  SEGMENTS  013  AND  015  ARE RUN AS ONE MAIN PROGRAM.                    H0010410
C*****                                                                           H0010415
      DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,MCGVD,              H0010420
     1MCHVD,MCIVD,EEDVD,ACVD,BCVD,CCVD,DCVD,DDDVD,CCDVD,FFDVD,GGDVD,            H0010425
     2 HHDVD,EP1D(43),AC1D(10),BC2D(7,4),CC3D(7,2,2),FC2D(5,5)                   H0010430
      DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD,DPHVD,         H0010435
     1  DPIVD,DPJVD,DPKVD,DPLVD,DPMVD,DPNVD,DPOVD,DPPVD,                        H0010440
     2  AADVD,BBDVD,PPDVD,RRDVD,SSDVD,TTDVD,UUDVD,VVDVD,WWDVD,XXDVD,            H0010445
     3  YYDVD,ZZDVD,ECVD,FCVD,GCVD,HCVD,RC3D(3,3,3),MCJVD,MCKVD                 H0010450
      COMPLEX QEVC,QFVC,QGVC,QHVC,QIVC,QJVC,QKVC,QLVC,QMVC,QNVC,QOVC,           H0010455
     1  QPVC,QRVC,QSVC,QTVC,QUVC,QVVC,KVC,LVC,MVC,NVC,OVC,PVC,QVC,VVC,          H0010460
     2  MEVC,MFVC,MGVC,MHVC,MIVC,QQVC,MJVC,MKVC,MLVC,      MNVC,MOVC,           H0010465
     3  MPVC,MQVC,MRVC,MSVC,MTVC,MUVC,MVVC,BCVC,DCVC,DDVC                       H0010470
      COMPLEX AVC,BVC,CVC,DVC,EVC,FVC,GVC,HVC,IVC,JVC,AAVC,                    H0010475
     1          ABVC,BAVC,BBVC,CCVC,CDVC,CAVC,DAVC,ASVC,BSVC,CSVC,             H0010480
     2          DSVC,AAAVC,ABAVC,ACAVC,ADAVC,CHCVC                             H0010485
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      COMPLEX NUMVC,      QAVC,QBVC,QCVC,QDVC,RVC,SVC,TVC,UVC            H0010490
     1 ,        MAVC,MBVC,MCVC,MDVC,B1C(8),B2C(4,2),B3C(2,2,2)          H0010495
      COMPLEX LL1C(32),LM2C(8,4),LN3C(9,2,2),A1C(12),A2C(2,2),A3C(2,2,1)H0010500
C*****  END OF SPECIFICATIDNS FOR SEGMENTS 013, 015                     H0010505
C*****                                                                  H0010510
C*********************************************************************H0130010
C*****                                                                  H0130020
C*****                          DASGN - (013)                           H0130030
C*****                                                                  H0130040
C*********************************************************************H0130050
C*****  GENERAL PURPDSE                                    ASA REF     H0130060
C*****  * TD TEST ALL PDSSIBLE METHDDS OF FORMING DDUBLE   5.1.1 THRUH0130070
C*****    PRECISION CDNSTANTS                                          H0130080
C*****  * TD TEST THAT D.P. VARIABLES AND ARRAY            5.1.2 /5    H0130090
C*****    ELEMENTS MAY BE REFERENCED                       5.1.3.1/16H0130100
C*****  * TO TEST VERY SIMPLE ARITHMETIC ASSIGNMENT        7.1.1.1     H0130110
C*****    STATEMENTS, SO THAT THIS FEATURE CAN BE USEO     TABLE 1     H0130120
C*****    FOR INITIALIZATION IN LATER SEGMENTS                         H0130130
C*****  S P E C I F I C A T I D N S  SEGMENT 013                       H0130140
C*****                                                                  H0010515
C*****  WHEN EXECUTING ONLY SEGMENT 013, REMOVE THE PRECEOING           H0010520
C*****  SPECIFICATIONS.  THE FDLLOWING SPECIFICATIDNS WHICH APPEAR      H0010525
C*****  AS CDMMENTS MUST HAVE THE  C= IN CDLUMNS 1 ANO 2 REMOVED.       H0010530
C*****                                                                  H0010535
C=    DDUBLE PRECISIDN  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,MCGVD,     H0010540
C=   1MCHVD,MCIVD,EEDVO,ACVO,BCVD,CCVD,DCVO,DODVO,CCDVO,FFDVD,GGDVD,   H0010545
C=   2 HHDVD,EP1D(43),AC1D(10),BC2D(7,4),CC3D(7,2,2),FC2D(5,5)         H0010550
C=    DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD,DPHVD, H0010555
C=   1  DPIVD,DPJVD,DPKVD,DPLVD,DPMVD,DPNVD,DPDVD,DPPVD,               H0010560
C=   2  AAOVD,BBDVD,PPDVD,RRDVD,SSDVD,TTDVD,UUDVD,VVDVD,WWOVD,XXDVD,   H0010565
C=   3  YYDVD,ZZOVD,ECVD,FCVO,GCVD,HCVD,RC3D(3,3,3),MCJVD,MCKVD       H0010570
C*****                                                                  H0010575
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS         H0130150
C*****                                                                  H0130160
      IRVI = 5                                                          H0070400
      NUVI = 6                                                          H0070405
C*****  IOENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0070410
      WRITE(NUVI,0071)                                                  H0070415
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0070420
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                  H0070425
     3 37H  FDR USE DN LARGE FORTRAN PROCESSORS  //                     H0070430
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0070435
     5 23H  VERSIDN 3     PART 2 ///)                                  H0070440
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER       H0070445
C       PREPARED BY USER                                                H0070450
C       PREPARED BY USER                                                H0070455
C       READ, ND LIST                                                   H0070460
C       PREPARED BY USER                                                H0070465
C       READ, ND LIST                                                   H0070470
      READ(IRVI,0070)                                                   H0070475
      READ(IRVI,0072)                                                   H0070480
      READ(IRVI,0073)                                                   H0070485
0070  FORMAT(40H   BASED ON ASA FO-TRAN X3.9-1966       /)              H0070490
0072  FORMAT(40H   TEST PRDGRAMS                        /)              H0070495
0073  FORMAT(40H   FORTRAN COMPILER                     /)              H0070500
      WRITE(NUVI,0070)                                                  H0070505
      WRITE(NUVI,0072)                                                  H0070510
      WRITE(NUVI,0073)                                                  H0070515
      WRITE (NUVI,130)                                                  H0130170
      WRITE(NUVI,131)                                                   H0130180
130   FORMAT(1H1,1X,36HDASGN - (013) SIMPLE D.P. ARITHMETIC/            H0130190
     1 16X,18HASSIGNMENT STMNTS./2X,28HASA REFS. - 7.1.1.1  5.1.1.3//   H0130200
     2  2X,7HRESULTS)                                                  H0130210
131   FDRMAT(/2X,23HLINE 1 OF EACH GRDUP IS/                            H0130220
     A 2X,21HHOLLERITH INFORMATION)                                     H0130230
C*****    HEADER FOR THIS SEGMENT WRITTEN                               H0130240
C*****    TEST ASSIGNMENT OF UNSIGNED OP CONSTANTS WITH     7.1.1.1/41H0130250
C*****    UNSIGNED EXPONENTS TO VARIABLES AND ARRAY ELEMENTS 5.1.1.3/40H0130260
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C*****                                                          5.1.1  /14H0130270
C*****                                                          5.1.1.3/36H0130280
C*****                                                          5.1.1.2/26H0130290
      MCAVD = 3.4D1                                                      H0130300
      MCBVD = 123456.7891011D02                                          H0130310
      AC1D(1)      = 3.4D1                                               H0130320
      AC1D(2)      = 123456.7891011D02                                   H0130330
      BC2D(1,1)    = 3.4D1                                               H0130340
      BC2D(2,1)    = 123456.7891011D02                                   H0130350
      CC3D(1,1,1) = 3.4D1                                                H0130360
      CC3D(2,1,1) = 123456.7891011D2                                     H0130370
C*****    ASSIGNMENT OF UNSIGNED DP CONSTANTS WITH                      5.1.1.3/36H0130380
C*****    SIGNED EXPONENTS TO VARIABLES AND ARRAY ELEMENTS              5.1.1.2/26H0130390
      MCCVD =  29.8765234D-3                                             H0130400
      MCDVD =  345.10000555D+4                                           H0130410
      AC1D(3)      = 29.8765234D-3                                       H0130420
      AC1D(4)      = 345.10000555D+4                                     H0130430
      BC2D(3,1)    = 29.8765234D-3                                       H0130440
      BC2D(4,1)    = 345.10000555D+4                                     H0130450
      CC3D(3,1,1) = 29.8765234D-3                                        H0130460
      CC3D(4,1,1) = 345.10000555D+4                                      H0130470
C*****    ASSIGNMENT DF UNSIGNED DP CONSTANTS (ND DECIMAL               5.1.1.2/22H0130480
C*****    PART) WITH UNSIGNED EXPONENTS TO VARIABLES                    H0130490
C*****    AND ARRAY ELEMENTS                                            H0130500
      MCEVD = 22232425.D00                                               H0130510
      AC1D(5)      = 22232425.D00                                        H0130520
      BC2D(5,1)    = 22232425.D00                                        H0130530
      CC3D(5,1,1) = 22232425.D00                                         H0130540
C*****    ASSIGNMENT DF UNSIGNED DP CONSTANTS (ND                       5.1.1.2/22H0130550
C*****    INTEGER PART) WITH UNSIGNED EXPONENTS TO                      H0130560
C*****    VARIABLES AND ARRAY ELEMENTS                                  H0130570
      MCFVD = .281420D5                                                  H0130580
      AC1D(6)      = .281420D5                                           H0130590
      BC2D(6,1)    = .281420D5                                           H0130600
      CC3D(6,1,1) = .281420D5                                            H0130610
C*****    ASSIGNMENT OF UNSIGNED DP CONSTANTS (ND DECIMAL               H0130620
C*****    PART) WITH SIGNED EXPONENTS TO VARIABLES AND                  H0130630
C*****    ARRAY ELEMENTS                                                H0130640
      MCGVD =  4455667788.D+6                                            H0130650
      MCHVD =  35692483569248.D-02                                       H0130660
      AC1D(7)      = 4455667788.D+6                                      H0130670
      AC1D(8)      = 35692483569248.D-02                                 H0130680
      BC2D(7,1)    = 4455667788.D+6                                      H0130690
      BC2D(1,2)    = 35692483569248.D-02                                 H0130700
      CC3D(7,1,1) = 4455667788.D+6                                       H0130710
      CC3D(1,2,1) = 35692483569248.D-2                                   H0130720
C*****    ASSIGNMENT DF UNSIGNED DP CONSTANTS (NO                       H0130730
C*****    INTEGER PART) WITH SIGNED EXPONENTS TO                        H0130740
C*****    VARIABLES AND ARRAY ELEMENTS                                  H0130750
      ACVD =   .6549876D-3                                               H0130760
      BCVD =   .78D+10                                                   H0130770
      AC1D(9)      = .6549876D-3                                         H0130780
      AC1D(10)     = .78D+10                                             H0130790
      BC2D(2,2)    = .6549876D-3                                         H0130800
      BC2D(3,2)    = .78D+10                                             H0130810
      CC3D(2,2,1) = .6549876D-3                                          H0130820
      CC3D(3,2,1) = .78D+10                                              H0130830
C*****    ASSIGNMENT DF SIGNED DP CONSTANTS WITH                        5.1.1  /12H0130840
C*****    UNSIGNED EXPONENTS TO VARIABLES AND ARRAY                     H0130850
C*****    ELEMENTS                                                      H0130860
      CCVD =   +0.0D0                                                    H0130870
      DCVD =   -17263544.5D3                                             H0130880
      EP1D(1)      = +0.0D0                                              H0130890
      EP1D(2)      = -17263544.5D3                                       H0130900
      BC2D(4,2)    = +0.0D00                                             H0130910
      BC2D(5,2)    = -17263544.5D3                                       H0130920
      CC3D(4,2,1) = +0.0D0                                               H0130930
      CC3D(5,2,1) = -17263544.5D3                                        H0130940
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C*****    ASSIGNMENT OF SIGNED DP CONSTANTS WITH                  H0130950
C*****    SIGNED EXPONENTS TO VARIABLES AND ARRAY                 H0130960
C*****    ELEMENTS                                                H0130970
      ECVD =    +1987.62D+1                                       H0130980
      FCVD =    -2.54396621D+2                                    H0130990
      GCVD =    +34.7865299102340-7                               H0131000
      HCVD =    -44.4D-10                                         H0131010
      EP1D(3)      = +1987.62D+1                                  H0131020
      EP1D(4)      = -2.54396621D+2                               H0131030
      EP1D(5)      = +34.7865299102340-7                          H0131040
      EP1D(6)      = -44.4D-10                                    H0131050
      BC2D(6,2)    = +1987.62D+1                                  H0131060
      BC2D(7,2)    = -2.54396621D+2                               H0131070
      BC2D(1,3)    = +34.7865299102340-7                          H0131080
      BC2D(2,3)    = -44.4D-10                                    H0131090
      CC3D(6,2,1) = +1987.62D+1                                   H0131100
      CC3D(7,2,1) = -2.54396621D+2                                H0131110
      CC3D(1,1,2) = +34.7865299102340-07                          H0131120
      CC3D(2,1,2) = -44.4D-10                                     H0131130
C*****    ASSIGNMENT OF SIGNED DP CONSTANTS (NO DECIMAL           H0131140
C*****    PART) WITH SIGNED EXPONENT TO VARIABLES AND             H0131150
C*****    ARRAY ELEMENTS                                          H0131160
      AADVD =   +0.D+1                                            H0131170
      BBDVD =   -123.D+17                                         H0131180
      CCDVD =   +3692468.D-8                                      H0131190
      DDDVD =   -147937824967.D-5                                 H0131200
      EP1D(7)      = +0.D+1                                       H0131210
      EP1D(8)      = -123.D+17                                    H0131220
      EP1D(9)      = +3692468.D-8                                 H0131230
      EP1D(10)     = -147937824967.D-5                            H0131240
      BC2D(3,3)    = +0.D+1                                       H0131250
      BC2D(4,3)    = -123.D+17                                    H0131260
      BC2D(5,3)    = +3692468.D-8                                 H0131270
      BC2D(6,3)    = -147937824967.D-5                            H0131280
      CC3D(3,1,2) = +0.D+1                                        H0131290
      CC3D(4,1,2) = -123.D+17                                     H0131300
      CC3D(5,1,2) = +3692468.D-8                                  H0131310
      CC3D(6,1,2) = -147937824967.D-5                             H0131320
C*****    ASSIGNMENT OF SIGNED DP CONSTANTS (NO INTEGER           H0131330
C*****    PART) WITH SIGNED EXPONENTS TO VARIABLES AND            H0131340
C*****    ARRAY ELEMENTS                                          H0131350
      EEDVD = +.927786174985D+2                                   H0131360
      FFDVD = -.59354914223619D+0                                 H0131370
      GGDVD = +.98663271D-03                                      H0131380
      HHDVD = -.1D-15                                             H0131390
      EP1D(11)     = +.927786174985D+2                            H0131400
      EP1D(12)     = -.59354914223619D+0                          H0131410
      EP1D(13)     = +.98663271D-03                               H0131420
      EP1D(14)     = -.1D-15                                      H0131430
      BC2D(7,3)    = +.927786174985D+2                            H0131440
      BC2D(1,4)    = -.59354914223619D+0                          H0131450
      BC2D(2,4)    = +.98663271D-03                               H0131460
      BC2D(3,4)    = -.1D-15                                      H0131470
      CC3D(7,1,2) = +.927786174985D+2                             H0131480
      CC3D(1,2,2) = -.59354914223619D+0                           H0131490
      CC3D(2,2,2) = +.98663271D-3                                 H0131500
      CC3D(3,2,2) = -.1D-15                                       H0131510
C*****    ASSIGNMENT OF SIGNED DP CONSTANTS (NO DECIMAL           H0131520
C*****    PART) WITH UNSIGNED EXPONENTS TO VARIABLES              H0131530
C*****    AND ARRAY ELEMENTS                                      H0131540
      PPDVD = +3261294675.D12                                     H0131550
      RRDVD = -969492909.D4                                       H0131560
      EP1D(15)     = +3261294675.D12                              H0131570
      EP1D(16)     = -969492909.D4                                H0131580
      BC2D(4,4)    = +3261294675.D12                              H0131590
      BC2D(5,4)    = -969492909.D4                                H0131600
      CC3D(4,2,2) = +3261294675.D12                               H0131610
      CC3D(5,2,2) = -969492909.D4                                 H0131620
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C*****    ASSIGNMENT OF SIGNED DP CONSTANTS (NO INTEGER                  H0131630
C*****    PART) WITH UNSIGNED EXPONENTS TO VARIABLES                     H0131640
C*****    AND ARRAY ELEMENTS                                             H0131650
      SSDVD = +.001246085D3                                              H0131660
      TTDVD = -.59D2                                                     H0131670
      EP1D(17)     = +.001246085D3                                       H0131680
      EP1D(18)     = -.59D2                                              H0131690
      BC2D(6,4)    = +.001246085D3                                       H0131700
      BC2D(7,4)    = -.59D2                                              H0131710
      CC3D(6,2,2) = +.001246085D3                                        H0131720
      CC3D(7,2,2) = -.59D2                                               H0131730
C*****    ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING          5.1.1.3/42H0131740
C*****    UNSIGNED EXPONENTS TO UNSIGNED INTEGERS                        H0131750
      UUDVD = 798281392253D0                                             H0131760
      EP1D(19)     = 798281392253D0                                      H0131770
      FC2D(1,1)    = 798281392253D0                                      H0131780
      RC3D(1,1,1) = 798281392253D0                                       H0131790
C*****    ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING                    H0131800
C*****    SIGNED EXPONENTS TO UNSIGNED INTEGERS                          H0131810
      VVDVD = 42921D+6                                                   H0131820
      WWDVD = 793685443D-4                                               H0131830
      EP1D(20)     = 42921D+6                                            H0131840
      EP1D(21)     = 793685443D-4                                        H0131850
      FC2D(2,1)    = 42921D+6                                            H0131860
      FC2D(3,1)    = 793685443D-4                                        H0131870
      RC3D(2,1,1) = 42921D+6                                             H0131880
      RC3D(3,1,1) = 793685443D-4                                         H0131890
C*****    ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING                    H0131900
C*****    UNSIGNED EXPONENTS TO SIGNED INTEGERS                          H0131910
      XXDVD = +33344455566D2                                             H0131920
      YYDVD = -22233444D1                                                H0131930
      EP1D(22)     = +33344455566D2                                      H0131940
      EP1D(23)     = -22233444D1                                         H0131950
      FC2D(4,1)    = +33344455566D2                                      H0131960
      FC2D(5,1)    = -22233444D1                                         H0131970
      RC3D(1,2,1) = +33344455566D2                                       H0131980
      RC3D(2,2,1) = -22233444D1                                          H0131990
C*****    ASSIGNMENT OF DP CONSTANTS FORMED BY ADDING                    H0132000
C*****    SIGNED EXPONENTS TO SIGNED INTEGERS                            H0132010
      ZZDVD = +1D+1                                                      H0132020
      MCIVD = -2D+2                                                      H0132030
      MCJVD = +33333333333333D-3                                         H0132040
      MCKVD = -444444444D-4                                              H0132050
      EP1D(24)     = +1D+1                                               H0132060
      EP1D(25)     = -2D+2                                               H0132070
      EP1D(26)     = +33333333333333D-3                                  H0132080
      EP1D(27)     = -444444444D-4                                       H0132090
      FC2D(1,2)    = +1D+1                                               H0132100
      FC2D(2,2)    = -2D+2                                               H0132110
      FC2D(3,2)    = +33333333333333D-3                                  H0132120
      FC2D(4,2)    = -444444444D-4                                       H0132130
      RC3D(3,2,1) = +1D+1                                                H0132140
      RC3D(1,3,1) = -2D+2                                                H0132150
      RC3D(2,3,1) = +33333333333333D-3                                   H0132160
      RC3D(3,3,1) = -444444444D-4                                        H0132170
C*****    ASSIGNMENT OF UNSIGNED DP VARIABLES AND ARRAY        7.1.1.1/41H0132180
C*****    ELEMENTS TO DP VARIABLES AND ARRAY ELEMENTS                    H0132190
C*****    (BOTH PLUS AND MINUS VALUES ARE ASSIGNED IN THIS               H0132200
C*****    WAY)                                                           H0132210
      DPAVD = MCAVD                                                      H0132220
      DPBVD = DCVD                                                       H0132230
      DPCVD = EP1D(1)                                                    H0132240
      DPDVD = EP1D(2)                                                    H0132250
      DPEVD = BC2D(2,2)                                                  H0132260
      DPFVD = BC2D(4,2)                                                  H0132270
      DPGVD = CC3D(3,1,1)                                                H0132280
      DPHVD = CC3D(7,2,1)                                                H0132290
      EP1D(28) = DPAVD                                                   H0132300
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      EP1D(29) = DPBVD                                                  H0132310
      EP1D(30) = EP1D(1)                                                H0132320
      EP1D(31) = EP1D(2)                                                H0132330
      EP1D(32) = BC2D(2,2)                                              H0132340
      EP1D(33) = BC2D(4,2)                                              H0132350
      EP1D(34) = CC3D(3,1,1)                                            H0132360
      EP1D(35) = CC3D(7,2,1)                                            H0132370
      FC2D(5,2) = DPAVD                                                 H0132380
      FC2D(1,3) = DPBVD                                                 H0132390
      FC2D(2,3) = EP1D(1)                                               H0132400
      FC2D(3,3) = EP1D(2)                                               H0132410
      FC2D(4,3) = BC2D(2,2)                                             H0132420
      FC2D(5,3) = BC2D(4,2)                                             H0132430
      FC2D(1,4) = CC3D(3,1,1)                                           H0132440
      FC2D(2,4) = CC3D(7,2,1)                                           H0132450
      RC3D(1,1,2) = MCAVD                                               H0132460
      RC3D(2,1,2) = DCVD                                                H0132470
      RC3D(3,1,2) = EP1D(1)                                             H0132480
      RC3D(1,2,2) = EP1D(2)                                             H0132490
      RC3D(2,2,2) = BC2D(2,2)                                           H0132500
      RC3D(3,2,2) = BC2D(4,2)                                           H0132510
      RC3D(1,3,2) = CC3D(3,1,1)                                         H0132520
      RC3D(2,3,2) = CC3D(7,2,1)                                         H0132530
C*****    ASSIGNMENT OF SIGNED DP VARIABLES AND ARRAY                   H0132540
C*****    ELEMENTS TO DP VARIABLES AND ARRAY ELEMENTS                   H0132550
C*****    (UNARY MINUS USED TO REVERSE BOTH PLUS AND          6.4    /44H0132560
C*****    MINUS VALUES)                                                 H0132570
      DPIVD = -GCVD                                                     H0132580
      DPJVD = -DDDVD                                                    H0132590
      DPKVD = -AC1D(3)                                                  H0132600
      DPLVD = -EP1D(10)                                                 H0132610
      DPMVD = -BC2D(3,1)                                                H0132620
      DPNVD = -BC2D(2,4)                                                H0132630
      DPOVD = -CC3D(2,1,1)                                              H0132640
      DPPVD = -CC3D(2,1,2)                                              H0132650
      EP1D(36) = -GCVD                                                  H0132660
      EP1D(37) = -DDDVD                                                 H0132670
      EP1D(38) = -AC1D(3)                                               H0132680
      EP1D(39) = -EP1D(10)                                              H0132690
      EP1D(40) = -BC2D(3,1)                                             H0132700
      EP1D(41) = -BC2D(2,4)                                             H0132710
      EP1D(42) = -CC3D(2,1,1)                                           H0132720
      EP1D(43) = -CC3D(2,1,2)                                           H0132730
      FC2D(3,4) = -GCVD                                                 H0132740
      FC2D(4,4) = -DDDVD                                                H0132750
      FC2D(5,4) = -AC1D(3)                                              H0132760
      FC2D(1,5) = -EP1D(10)                                             H0132770
      FC2D(2,5) = -BC2D(3,1)                                            H0132780
      FC2D(3,5) = -BC2D(2,4)                                            H0132790
      FC2D(4,5) = -CC3D(2,1,1)                                          H0132800
      FC2D(5,5) = -CC3D(2,1,2)                                          H0132810
      RC3D(3,3,2) = -GCVD                                               H0132820
      RC3D(1,1,3) = -DDDVD                                              H0132830
      RC3D(2,1,3) = -AC1D(3)                                            H0132840
      RC3D(3,1,3) = -EP1D(10)                                           H0132850
      RC3D(1,2,3) = -BC2D(3,1)                                          H0132860
      RC3D(2,2,3) = -BC2D(2,4)                                          H0132870
      RC3D(3,2,3) = -CC3D(2,1,1)                                        H0132880
      RC3D(1,3,3) = -CC3D(2,1,2)                                        H0132890
C*****    WRITE RESULTS FOR THIS SEGMENT                                H0132900
      WRITE (NUVI,132) MCAVD, AC1D(1), BC2D(1,1), CC3D(1,1,1), MCBVD,   H0132910
     A    AC1D(2), BC2D(2,1), CC3D(2,1,1), MCCVD, AC1D(3), BC2D(3,1),   H0132920
     B    CC3D(3,1,1), MCDVD, AC1D(4), BC2D(4,1), CC3D(4,1,1), MCEVD,   H0132930
     C    AC1D(5), BC2D(5,1), CC3D(5,1,1), MCFVD, AC1D(6), BC2D(6,1),   H0132940
     D    CC3D(6,1,1), MCGVD, AC1D(7), BC2D(7,1), CC3D(7,1,1), MCHVD,   H0132950
     E    AC1D(8), BC2D(1,2), CC3D(1,2,1), ACVD, AC1D(9), BC2D(2,2),    H0132960
     F    CC3D(2,2,1), BCVD, AC1D(10), BC2D(3,2), CC3D(3,2,1), CCVD,    H0132970
     G    EP1D(1) , BC2D(4,2), CC3D(4,2,1), DCVD, EP1D(2) , BC2D(5,2),  H0132980
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     H    CC3D(5,2,1), ECVD, EP1D(3) , BC2D(6,2), CC3D(6,2,1), FCVD,     H0132990
     I    EP1D(4) , BC2D(7,2), CC3D(7,2,1), GCVD, EP1D(5) , BC2D(1,3),   H0133000
     J    CC3D(1,1,2), HCVD, EP1D(6) , BC2D(2,3), CC3D(2,1,2), AADVD,    H0133010
     K    EP1D(7) , BC2D(3,3), CC3D(3,1,2), BBDVD, EP1D(8) , BC2D(4,3),  H0133020
     L    CC3D(4,1,2), CCDVD, EP1D(9) , BC2D(5,3), CC3D(5,1,2), DDDVD,   H0133030
     M    EP1D(10), BC2D(6,3), CC3D(6,1,2)                               H0133040
      WRITE (NUVI,133) EEDVD, EP1D(11), BC2D(7,3), CC3D(7,1,2), FFDVD,   H0133050
     1    EP1D(12), BC2D(1,4), CC3D(1,2,2),GGDVD, EP1D(13), BC2D(2,4),   H0133060
     2    CC3D(2,2,2), HHDVD, EP1D(14), BC2D(3,4), CC3D(3,2,2), PPDVD,   H0133070
     3    EP1D(15),  BC2D(4,4), CC3D(4,2,2), RRDVD, EP1D(16),BC2D( 5,4),H0133080
     4    CC3D(5,2,2),SSDVD, EP1D(17), BC2D(6,4), CC3D(6,2,2), TTDVD,    H0133090
     5    EP1D(18), BC2D(7,4), CC3D(7,2,2)                               H0133100
      WRITE (NUVI,134) UUDVD, EP1D(19), FC2D(1,1), RC3D(1,1,1), VVDVD,   H0133110
     1    EP1D(20), FC2D(2,1), RC3D(2,1,1), WWDVD, EP1D(21), FC2D(3,1),  H0133120
     2    RC3D(3,1,1), XXDVD, EP1D(22), FC2D(4,1), RC3D(1,2,1), YYDVD,   H0133130
     3    EP1D(23), FC2D(5,1), RC3D(2,2,1), ZZDVD, EP1D(24), FC2D(1,2),  H0133140
     4    RC3D(3,2,1), MCIVD, EP1D(25), FC2D(2,2), RC3D(1,3,1), MCJVD,   H0133150
     5    EP1D(26), FC2D(3,2), RC3D(2,3,1), MCKVD, EP1D(27), FC2D(4,2),  H0133160
     6    RC3D(3,3,1)                                                    H0133170
      WRITE (NUVI,135)  MCAVD, DPAVD, EP1D(28), FC2D(5,2), RC3D(1,1,2),  H0133180
     A    DCVD, DPBVD, EP1D(29), FC2D(1,3), RC3D(2,1,2), EP1D(1),        H0133190
     B    DPCVD, EP1D(30), FC2D(2,3), RC3D(3,1,2), EP1D(2), DPDVD,       H0133200
     C    EP1D(31), FC2D(3,3), RC3D(1,2,2), BC2D(2,2), DPEVD, EP1D(32),  H0133210
     D    FC2D(4,3), RC3D(2,2,2), BC2D(4,2), DPFVD, EP1D(33), FC2D(5,3),H0133220
     E    RC3D(3,2,2), CC3D(3,1,1), DPGVD, EP1D(34), FC2D(1,4),          H0133230
     F    RC3D(1,3,2), CC3D(7,2,1), DPHVD, EP1D(35), FC2D(2,4),          H0133240
     G    RC3D(2,3,2), GCVD, DPIVD, EP1D(36), FC2D(3,4), RC3D(3,3,2),    H0133250
     H    DDDVD, DPJVD, EP1D(37), FC2D(4,4), RC3D(1,1,3), AC1D(3),       H0133260
     I    DPKVD, EP1D(38), FC2D(5,4), RC3D(2,1,3), EP1D(10), DPLVD,      H0133270
     J    EP1D(39), FC2D(1,5), RC3D(3,1,3), BC2D(3,1), DPMVD, EP1D(40),  H0133280
     K    FC2D(2,5), RC3D(1,2,3), BC2D(2,4), DPNVD, EP1D(41), FC2D(3,5),H0133290
     L    RC3D(2,2,3), CC3D(2,1,1), DPOVD, EP1D(42), FC2D(4,5),          H0133300
     M    RC3D(3,2,3), CC3D(2,1,2), DPPVD, EP1D(43), FC2D(5,5),          H0133310
     N    RC3D(1,3,3)                                                    H0133320
132   FORMAT   (/ 6X,8H0.34D+02/4(D14.2/)/                               H0133330
     A             6X,19H0.1234567891011D+08/4(D25.13/)/                H0133340
     B             6X,15H0.298765234D-01/4(D21.9/)/                     H0133350
     C             6X,17H0.345100005555D+07/4(D23.11/)/                 H0133360
     D             6X,14H0.22232425D+08/4(D20.8/)/                      H0133370
     E             6X,12H0.281420D+05/4(D18.6/)/                        H0133380
     F             6X,16H0.4455667788D+16/4(D22.10/),                   H0133390
     G          1H1,5X,20H0.35692483569248D+12/4(D26.14/)/              H0133400
     H             6X,13H0.6549876D-03/4(D19.7/)/                       H0133410
     I             6X,8H0.78D+10/4(D14.2/)/                             H0133420
     J             6X,7H0.0D+00/4(D13.1/)/                              H0133430
     K             5X,16H-0.172635445D+11/4(D21.9/)/                    H0133440
     L             6X,12H0.198762D+05/4(D18.6/)/                        H0133450
     M             5X,16H-0.254396621D+03/4(D21.9/)/                    H0133460
     N             6X,20H0.34786529910234D-05/4(D26.14/)/               H0133470
     O             5X,10H-0.444D-08/4(D15.3/),                          H0133480
     P          1H1,5X,7H0.0D+00/4(D13.1/)/                             H0133490
     Q             5X,10H-0.123D+20/4(D15.3/)/                          H0133500
     R             6X,13H0.3692468D-01/4(D19.7/)/                       H0133510
     S             5X,19H-0.147937824967D+07/4(D24.12/),1H )            H0133520
133   FORMAT   (  6X,18H0.927786174985D+02/4(D24.12/)/                   H0133530
     T             5X,21H-0.59354914223619D+00/4(D26.14/)/              H0133540
     U             6X,14H0.98663271D-03/4(D20.8/)/                      H0133550
     V             5X,8H-0.1D-15/4(D13.1/)/                             H0133560
     W             6X,16H0.3261294675D+22/4(D22.10/),                   H0133570
     X          1H1,4X,16H-0.969492909D+13/4(D21.9/)/                   H0133580
     Y             6X,13H0.1246085D+01/4(D19.7/)/                       H0133590
     Z             5X,9H-0.59D+02/4(D14.2/),1H )                        H0133600
134   FORMAT   (  6X,18H0.798281392253D+12/4(D24.12/)/                   H0133610
     1             6X,11H0.42921D+11/4(D17.5/)/                         H0133620
     2             6X,15H0.793685443D+05/4(D21.9/)/                     H0133630
     3             6X,17H0.33344455566D+13/4(D23.11/)/                  H0133640
     4             5X,16H-0.222333444D+10/4(D21.9/)/                    H0133650
     5             6X,7H0.1D+02/4(D13.1/),                              H0133660
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     6         1H1,4X,8H-0.2D+03/4(D13.1/)/                                  H0133670
     7              6X,20H0.33333333333333D+11/4(D26.14/)/                   H0133680
     8              5X,16H-0.444444444D+05/4(D21.9/),1H )                    H0133690
135   FORMAT( 6X,20H0.34000000000000D+02/5(D26.14/)/                          H0133700
     1        5X,21H-0.17263544500000D+11/5(D26.14/)/                       H0133710
     2        6X,20H0.00000000000000D+00/5(D26.14/)/                        H0133720
     3        5X,21H-0.17263544500000D+11/5(D26.14/)/                       H0133730
     4        6X,20H0.65498760000000D-03/5(D26.14/),                        H0133740
     5   1H1,5X,20H0.00000000000000D+00/5(D26.14/)/                         H0133750
     6        6X,20H0.29876523400000D-01/5(D26.14/)/                        H0133760
     7        5X,21H-0.25439662100000D+03/5(D26.14/),                       H0133770
     8 39H1 EACH GROUP SHOULD BE IDENTICAL EXCEPT/                          H0133780
     9 38H  FOR THE SIGNS OF THE FIRST TWO LINES//                          H0133790
     A        6X,20H0.34786529910234D-05/5(D26.14/)/                        H0133800
     B        5X,21H-0.14793782496700D+07/5(D26.14/)/                       H0133810
     C        6X,20H0.29876523400000D-01/5(D26.14/)/                        H0133820
     D        5X,21H-0.14793782496700D+07/5(D26.14/)/                       H0133830
     E        6X,20H0.29876523400000D-01/5(D26.14/)/                        H0133840
     F        6X,20H0.98663271000000D-03/5(D26.14/)/                        H0133850
     G        6X,20H0.12345678910110D+08/5(D26.14/),                        H0133860
     H   1H1,4X,21H-0.44400000000000D-08/5(D26.14/))                        H0133870
C*****    END OF SEGMENT 013                                                H0133880
C*****  WHEN EXECUTING ONLY SEGMENT 013, THE STOP AND END CARDS             H0133890
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                          H0133900
C*****  IN COLUMNS  1  AND  2  REMOVED                                      H0133910
C=     STOP                                                                 H0133920
C=     END                                                                  H0133930
C*************************************************************************H0150010
C*****                                                                     H0150020
C*****                          CASGN - (015)                              H0150030
C*****                                                                     H0150040
C*************************************************************************H0150050
C*****  GENERAL PURPOSE                                        ASA REF     H0150060
C*****  * TO TEST METHODS OF FORMING COMPLEX CONSTANTS         5.1.1       H0150070
C*****  * TO TEST THAT COMPLEX VARIABLES AND ARRAY             5.1.2 /5    H0150080
C*****    ELEMENTS MAY BE REFERENCED.                          5.1.3 /16   H0150090
C*****  * TO TEST SIMPLE ARITHMETIC ASSIGNMENT STATEMENTS      7.1.1.1     H0150100
C*****    SO THAT THIS FEATURE CAN BE USED FOR INITIALIZATION TABLE 1      H0150110
C*****    IN LATER SEGMENTS                                                H0150120
C*****  S P E C I F I C A T I O N S  SEGMENT 015                           H0150130
C*****                                                                     H0010580
C*****  WHEN EXECUTING ONLY SEGMENT 015, THE SPECIFICATION STATEMENTS      H0010585
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE C= IN COLUMNS               H0010590
C*****  1  AND  2  REMOVED.                                                H0010595
C*****                                                                     H0010600
C=     COMPLEX QEVC,QFVC,QGVC,QHVC,QIVC,QJVC,QKVC,QLVC,QMVC,QNVC,QOVC,     H0010605
C=    1  QPVC,QRVC,QSVC,QTVC,QUVC,QVVC,KVC,LVC,MVC,NVC,OVC,PVC,QVC,VVC,   H0010610
C=    2  MEVC,MFVC,MGVC,MHVC,MIVC,QQVC,MJVC,MKVC,MLVC,     MNVC,MOVC,     H0010615
C=    3  MPVC,MQVC,MRVC,MSVC,MTVC,MUVC,MVVC,BCVC,DCVC,DDVC                H0010620
C=     COMPLEX AVC,BVC,CVC,DVC,EVC,FVC,GVC,HVC,IVC,JVC,AAVC,               H0010625
C=    1          ABVC,BAVC,BBVC,CCVC,CDVC,CAVC,DAVC,ASVC,BSVC,CSVC,       H0010630
C=    2          DSVC,AAAVC,ABAVC,ACAVC,ADAVC,CHCVC                       H0010635
C=     COMPLEX NUMVC,       QAVC,QBVC,QCVC,QDVC,RVC,SVC,TVC,UVC           H0010640
C=    1 ,         MAVC,MBVC,MCVC,MDVC,B1C(8),B2C(4,2),B3C(2,2,2)         H0010645
C=     COMPLEX LL1C(32),LM2C(8,4),LN3C(9,2,2),A1C(12),A2C(2,2),A3C(2,2,1)H0010650
C*****                                                                     H0010655
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        H0150140
C*****                                                                     H0070520
C*****  WHEN EXECUTING ONLY SEGMENT 015, THE FOLLOWING STATEMENT           H0070525
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1  AND  2  REMOVED.          H0070530
C*****                                                                     H0070535
C=     NUVI = 6                                                           H0070540
C*****                                                                     H0070545
       WRITE (NUVI,150)                                                   H0150150
       WRITE (NUVI,151)                                                   H0150160
150    FORMAT(1H1,1X,32HCASGN - (015) COMPLEX ASSIGNMENT/                 H0150170
     1 16X, 10HSTATEMENTS/2X,28HASA REFS. - 5.1.1.4  7.1.1.1//            H0150180
     2 2X, 7HRESULTS//2X,23HLINE 1 OF EACH GROUP IS/                      H0150190
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     3 2X,21HHOLLERITH INFORMATION/)                                    H0150200
151   FORMAT(2X,36HVALUES IN A GROUP SHOULD BE THE SAME)                 H0150210
C*****    HEADER FOR SEGMENT 015 WRITTEN                               H0150220
C*****  BEGINNING OF TEST OF COMPLEX CONSTANT ASSIGNMENTS. IN          H0150230
C*****  THE FOLLOWING 22 BLOCKS, BOTH PARTS OF THE CONSTANT            H0150240
C*****  HAVE THE SAME METHOD OF FORMATION                              H0150250
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM             H0150260
C*****    UNSIGNED BASIC REAL CONSTANTS                                H0150270
      QAVC = (22.2,33.33)                                             H0150280
      LL1C(1)      = (22.2,33.33)                                     H0150290
      LM2C(1,1)    = (22.2,33.33)                                     H0150300
      LN3C(1,1,1) = (22.2,33.33)                                      H0150310
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM             H0150320
C*****    SIGNED BASIC REAL CONSTANTS                                  H0150330
      QBVC = (+395.6,+4106.7)                                         H0150340
      QCVC  = (-12345.67,-1234.567)                                   H0150350
      QDVC  = (+8.9,-9.1)                                             H0150360
      QEVC  = (-2635.12,+46.21)                                       H0150370
      LL1C(2)      = (+395.6,+4106.7)                                 H0150380
      LL1C(3)      = (-12345.67,-1234.567)                            H0150390
      LL1C(4)      = (+8.9,-9.1)                                      H0150400
      LL1C(5)      = (-2635.12,+46.21)                                H0150410
      LM2C(2,1)    = (+395.6,+4106.7)                                 H0150420
      LM2C(3,1)    = (-12345.67,-1234.567)                            H0150430
      LM2C(4,1)    = (+8.9,-9.1)                                      H0150440
      LM2C(5,1)    = (-2635.12,+46.21)                                H0150450
      LN3C(2,1,1) = (+395.6,+4106.7)                                  H0150460
      LN3C(3,1,1) = (-12345.67,-1234.567)                             H0150470
      LN3C(4,1,1) = (+8.9,-9.1)                                       H0150480
      LN3C(5,1,1) = (-2635.12,+46.21)                                 H0150490
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM             H0150500
C*****    UNSIGNED AND SIGNED REAL CONSTANTS (INTEGER PART             H0150510
C*****    ONLY)                                                        H0150520
      QFVC  = (10.,20.)                                               H0150530
      QGVC  = (+300.,+4000.)                                          H0150540
      QHVC  = (-50.,-600.)                                            H0150550
      QIVC  = (+71.,-92.)                                             H0150560
      QJVC  = (-883.,+1414.)                                          H0150570
      QKVC  = (10.,+562.)                                             H0150580
      QLVC  = (2002.,-983.)                                           H0150590
      QMVC  = (+461.,-165.)                                           H0150600
      QNVC  = (-21.,+122.)                                            H0150610
      LL1C(6)      = (10.,20.)                                        H0150620
      LM2C(6,1)    = (+300.,+4000.)                                   H0150630
      LN3C(6,1,1) = (-50.,-600.)                                      H0150640
      LL1C(7)      = (+71.,-92.)                                      H0150650
      LM2C(7,1)    = (-883.,+1414.)                                   H0150660
      LN3C(7,1,1) = (10.,+562.)                                       H0150670
      LL1C(8)      = (2002.,-983.)                                    H0150680
      LM2C(8,1)    = (+461.,-165.)                                    H0150690
      LN3C(8,1,1) = (-21.,+122.)                                      H0150700
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM             H0150710
C*****    UNSIGNED AND SIGNED REAL CONSTANTS (DECIMAL PART             H0150720
C*****    ONLY                                                         H0150730
      QOVC  = (.001,.00200)                                           H0150740
      QPVC  = (+.562,+.562)                                           H0150750
      QQVC  = (-.3,-.3333333)                                         H0150760
      QRVC  = (+.4,-.445)                                             H0150770
      QSVC  = (-.95,+.95)                                             H0150780
      QTVC  = (.0164239,+.36)                                         H0150790
      QUVC  = (.21,-.3963)                                            H0150800
      QVVC  = (+.3398,.3398)                                          H0150810
      NUMVC = (-.6,.6)                                                H0150820
      LL1C(9)      = (.001,.00200)                                    H0150830
      LM2C(1,2)    = (+.562,+.562)                                    H0150840
      LN3C(1,2,1) = (-.3,-.3333333)                                   H0150850
      LL1C(10)     = (+.4,-.445)                                      H0150860
      LM2C (2,2) = (-.95, +.95)                                       H0150870
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      LN3C(2,2,1) = (.0164239,+.36)                                    H0150880
      LL1C(11)    = (.21,-.3963)                                       H0150890
      LM2C(3,2)   = (+.3398,.3398)                                     H0150900
      LN3C(3,2,1) = (-.6,.6)                                           H0150910
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM            H0150920
C*****    UNSIGNEO REAL CONSTANTS WITH UNSIGNED EXPONENTS             H0150930
      AVC   = (0.0E0,1.0E0)                                            H0150940
      LL1C(12)    = (456231.1E1,789.453E3)                             H0150950
      LM2C(4,2)   = (44.9E4,2.5E3)                                     H0150960
      LN3C(4,2,1) = (2222.3E3,333.2E2)                                 H0150970
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMEO FROM            H0150980
C*****    UNSIGNED REAL CONSTANTS WITH SIGNEO EXPONENTS               H0150990
      BVC   = (3.0E+0,3.0E+0)                                          H0151000
      CVC   = (987654.3E-1,876543.2E-2)                                H0151010
      DVC   = (4.444E+3,55.555E-4)                                     H0151020
      EVC   = (6.0E-5,7.7E+6)                                          H0151030
      LL1C(13)    = (3.0E+0,3.0E+0)                                    H0151040
      LM2C(5,2)   = (987654.3E-1,876543.2E-2)                          H0151050
      LN3C(5,2,1) = (4.444E+3,55.555E-4)                               H0151060
      LL1C(14)    = (6.0E-5,7.7E+6)                                    H0151070
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMEO FROM            H0151080
C*****    SIGNEO REAL CONSTANTS WITH UNSIGNEO EXPONENTS               H0151090
      FVC   = (+14.2E1,+26.67E0)                                       H0151100
      GVC   = (-36.923E4,-0.234E03)                                    H0151110
      HVC   = (+2.1E2,-2.1E2)                                          H0151120
      IVC   = (-595.9E00,+4.967E2)                                     H0151130
      LM2C(6,2)   = (+14.2E1,+26.67E0)                                 H0151140
      LN3C(6,2,1) = (-36.923E4,-0.234E03)                              H0151150
      LL1C(15)    = (+2.1E2,-2.1E2)                                    H0151160
      LM2C(7,2)   = (-595.9E00,+4.967E2)                               H0151170
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM            H0151180
C*****    SIGNED REAL CONSTANTS WITH SIGNED EXPONENTS                 H0151190
      JVC   = (+1.0E+0,+1.0E+0)                                        H0151200
      KVC   = (-2.0E-0,-2.0E-0)                                        H0151210
      LVC   = (+49.2E-1,-65.27E+2)                                     H0151220
      MVC   = (-737.1E+3,+99.8E-3)                                     H0151230
      NVC   = (+4774.47E+03,-9362.4E-4)                                H0151240
      OVC   = (-846.2E-5,+13.33E+1)                                    H0151250
      LN3C(7,2,1) = (+1.0E+0,+1.0E+0)                                  H0151260
      LL1C(16)    = (-2.0E-0,-2.0E-0)                                  H0151270
      LM2C(1,3)   = (+49.2E-1,-65.27E+2)                               H0151280
      LN3C(1,1,2) = (-737.1E+3,+99.8E-3)                               H0151290
      LL1C(17)    = (+4774.47E+03,-9362.4E-4)                          H0151300
      LM2C(2,3)   = (-846.2E-5,+13.33E+1)                              H0151310
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM            H0151320
C*****    UNSIGNEO REAL CONSTANTS (NO OECIMAL PART) WITH              H0151330
C*****    UNSIGNEO EXPONENTS                                          H0151340
      PVC   = (77.E7,816248.E2)                                        H0151350
      LL1C(18)    = (77.E7,816248.E2)                                  H0151360
      LM2C(3,3)   = (1334.E01,379.E03)                                 H0151370
      LN3C(2,1,2) = (1334.E01,379.E03)                                 H0151380
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMEO FROM            H0151390
C*****    UNSIGNEO REAL CONSTANTS (NO OECIMAL PART) WITH              H0151400
C*****    SIGNED EXPONENTS                                            H0151410
      QVC   = (3.E+5,3.E+05)                                           H0151420
      RVC   = (299.E-4,299.E-1)                                        H0151430
      SVC   = (1419.E+2,1419.E-2)                                      H0151440
      TVC   = (76.E-3,987.E+0)                                         H0151450
      LL1C(19)    = (3.E+05,3.E+5)                                     H0151460
      LM2C(4,3)   = (299.E-4,299.E-1)                                  H0151470
      LN3C(3,1,2) = (1419.E+2,1419.E-2)                                H0151480
      LL1C(20) = (76.E-3, 987.E+0)                                     H0151490
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM            H0151500
C*****    SIGNEO REAL CONSTANTS (NO OECIMAL PART) WITH                H0151510
C*****    UNSIGNED EXPONENTS                                          H0151520
      UVC   = (+31.E0,+4659.E1)                                        H0151530
      VVC   = (-728.E2,-93296.E3)                                      H0151540
      MAVC = (+6.E6,-6.E6)                                             H0151550
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      MBVC = (-7914.E3,+16.E5)                                          H0151560
      LM2C(5,3)    = (+31.E0,+4659.E1)                                  H0151570
      LN3C(4,1,2) = (-728.E2,-93296.E3)                                 H0151580
      LL1C(21)     = (+6.E6,-6.E6)                                      H0151590
      LM2C(6,3)    = (-7914.E3,+16.E5)                                  H0151600
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM              H0151610
C*****    SIGNED REAL CONSTANTS (NO DECIMAL PART) WITH                  H0151620
C*****    SIGNED EXPONENTS                                              H0151630
      MCVC = (+1.E+1,+1.E+1)                                            H0151640
      MDVC = (-2.E-2,-2.E-2)                                            H0151650
      MEVC = (+3.E-3,-3.E+3)                                            H0151660
      MFVC = (-4.E+4,+4.E-4)                                            H0151670
      MGVC = (+5.E+5,-5.E-5)                                            H0151680
      MHVC = (-6.E-6,+6.E+6)                                            H0151690
      LN3C(5,1,2) = (+1.E+1,+1.E+1)                                     H0151700
      LL1C(22)     = (-2.E-2,-2.E-2)                                    H0151710
      LM2C(7,3)    = (+3.E-3,-3.E+3)                                    H0151720
      LN3C(6,1,2) = (-4.E+4,+4.E-4)                                     H0151730
      LL1C(23)     = (+5.E+5,-5.E-5)                                    H0151740
      LM2C(1,4)    = (-6.E-6,+6.E+6)                                    H0151750
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM              H0151760
C*****    UNSIGNED REAL CONSTANTS (NO INTEGER PART) WITH                H0151770
C*****    UNSIGNED EXPONENTS                                            H0151780
      MIVC = (.39393E01,.62E04)                                         H0151790
      LL1C(24)     = (.39393E01,.62E04)                                 H0151800
      LM2C(2,4)    = (.009E2,.765765E3)                                 H0151810
      LN3C(7,1,2) = (.009E2,.765765E3)                                  H0151820
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM              H0151830
C*****    UNSIGNED REAL CONSTANTS (NO INTEGER PART) WITH                H0151840
C*****    SIGNED EXPONENTS                                              H0151850
      MJVC =(.352E+09,.352E+3)                                          H0151860
      MKVC =(.147626E+0,.891E-14)                                       H0151870
      MLVC =(.9E-7,.9999E+8)                                            H0151880
      MNVC =(.13E-04,.13E-04)                                           H0151890
      LL1C(25)     =(.352E+09,.352E+3)                                  H0151900
      LM2C(3,4)    =(.147626E+0,.891E-14)                               H0151910
      LN3C(1,2,2) =(.9E-7,.9999E+8)                                     H0151920
      LN3C(2,2,2) =(.13E-4,.13E-4)                                      H0151930
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM              H0151940
C*****    SIGNED REAL CONSTANTS (NO INTEGER PART) WITH                  H0151950
C*****    UNSIGNED EXPONENTS                                            H0151960
      MOVC =(+.77E00,+.77E00)                                           H0151970
      MPVC =(+.878E1,-.878E1)                                           H0151980
      MQVC =(-.9797E2,+.9797E2)                                         H0151990
      MRVC =(-.10101E15,-.10101E15)                                     H0152000
      LL1C(26)     =(+.77E00,+.77E00)                                   H0152010
      LM2C(4,4)    =(+.878E1,-.878E1)                                   H0152020
      LN3C(3,2,2) =(-.9797E2,+.9797E2)                                  H0152030
      LN3C(4,2,2) =(-.10101E15,-.10101E15)                              H0152040
C*****    TEST ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM              H0152050
C*****    SIGNED REAL CONSTANTS (NO INTEGER PART) WITH                  H0152060
C*****    SIGNED EXPONENTS                                              H0152070
      MSVC =(+.68E+12,+.357628E+0)                                      H0152080
      MTVC =(+.798E-3,+.76444E-00)                                      H0152090
      MUVC =(-.3247E+20,-.2594E+5)                                      H0152100
      MVVC =(-.43599E-19,-.12E-4)                                       H0152110
      AAVC =(-.6E-9,-.6E+9)                                             H0152120
      ABVC =(-.9119E+6,+.9119E-6)                                       H0152130
      BAVC =(+.39426E+2,-.39426E-2)                                     H0152140
      BBVC =(+.45E-12,+.45E+12)                                         H0152150
      LL1C(27)     =(+.68E+12,+.357628E+0)                              H0152160
      LM2C(5,4)    =(+.798E-3,+.76444E-00)                              H0152170
      LN3C(5,2,2) =(-.3247E+20,-.2594E+5)                               H0152180
      LL1C(28)     =(-.43599E-19,-.12E-4)                               H0152190
      LM2C(6,4)    =(-.6E-9,-.6E+9)                                     H0152200
      LN3C(6,2,2) =(-.9119E+6,+.9119E-6)                                H0152210
      LM2C(7,4)    =(+.39426E+2,-.39426E-2)                             H0152220
      LN3C(7,2,2) =(+.45E-12,+.45E+12)                                  H0152230
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C*****  ASSIGNMENT OF COMPLEX CONSTANTS FORMED FROM SIGNED AND UNSIGNED H0152240
C*****  INTEGER CONSTANTS WITH SIGNED AND UNSIGNED EXPONENTS           H0152250
      BCVC = (+4793E+2,3479E2)                                         H0152260
      DDVC = (3682E-3,8236E-2)                                         H0152270
      DCVC = (-2571E5,+1752E+5)                                        H0152280
      CHCVC = (+1460E-4,-1064E+01)                                     H0152290
      A1C(5) = (4793E2,3479E+2)                                        H0152300
      A1C(6) = (3682E-03,+8236E-02)                                    H0152310
      A1C(7) = (-2571E+5,1752E+05)                                     H0152320
      A1C(8) = (1460E-4,-1064E1)                                       H0152330
      LM2C(8,2) = (4793E+2,+3479E+2)                                   H0152340
      LN3C(8,2,1) = (+3682E-3,8236E-02)                                H0152350
      LN3C(8,2,2) = (-2571E+05,1752E5)                                 H0152360
      LN3C(8,1,2) = (1460E-04,-1064E+1)                                H0152370
C*****    ASSIGNMENT OF COMPLEX VARIABLES AND ARRAY ELEMENTS           H0152380
C*****    TO COMPLEX VARIABLES AND ARRAY ELEMENTS                      H0152390
      CCVC = QTVC                                                      H0152400
      CDVC = LL1C(12)                                                  H0152410
      CAVC = LM2C(1,4)                                                 H0152420
      DAVC = LN3C(6,2,2)                                               H0152430
      A1C(1) = CCVC                                                    H0152440
      A1C(2) = LL1C(12)                                                H0152450
      A1C(3) = LM2C(1,4)                                               H0152460
      A1C(4) = LN3C(6,2,2)                                             H0152470
      A2C(1,1) = QTVC                                                  H0152480
      A2C(2,1) = LL1C(12)                                              H0152490
      A2C(1,2) = LM2C(1,4)                                             H0152500
      A2C(2,2) = LN3C(6,2,2)                                           H0152510
      A3C(1,1,1) = CCVC                                                H0152520
      A3C(2,1,1) = LL1C(12)                                            H0152530
      A3C(1,2,1) = LM2C(1,4)                                           H0152540
      A3C(2,2,1) = LN3C(6,2,2)                                         H0152550
C*****    ASSIGNMENT OF COMPLEX VARIABLES AND ARRAY ELEMENTS           H0152560
C*****    TO COMPLEX VARIABLES AND ARRAY ELEMENTS (UNARY         6.4/44H0152570
C*****    MINUS USED TO REVERSE BOTH PLUS AND MINUS VALUES)            H0152580
      ASVC = - QGVC                                                    H0152590
      BSVC = - QHVC                                                    H0152600
      CSVC = - LL1C(26)                                                H0152610
      DSVC = - LL1C(23)                                                H0152620
      AAAVC = - LM2C(1,3)                                              H0152630
      AAAVC = - LM2C(1,3)                                              H0152640
      ABAVC = - LM2C(1,4)                                              H0152650
      ACAVC = - LN3C(5,2,1)                                            H0152660
      ADAVC = - LN3C(6,2,1)                                            H0152670
      B1C(1) = - QGVC                                                  H0152680
      B1C(2) = - QHVC                                                  H0152690
      B1C(3) = - LL1C(26)                                              H0152700
      B1C(4) = - LL1C(23)                                              H0152710
      B1C(5) = - LM2C(1,3)                                             H0152720
      B1C(6) = - LM2C(1,4)                                             H0152730
      B1C(7) = - LN3C(5,2,1)                                           H0152740
      B1C(8) = - LN3C(6,2,1)                                           H0152750
      B2C(1,1) = - QGVC                                                H0152760
      B2C(2,1) = - QHVC                                                H0152770
      B2C(3,1) = - LL1C(26)                                            H0152780
      B2C(4,1) = - LL1C(23)                                            H0152790
      B2C(1,2) = - LM2C(1,3)                                           H0152800
      B2C(2,2) = - LM2C(1,4)                                           H0152810
      B2C(3,2) = - LN3C(5,2,1)                                         H0152820
      B2C(4,2) = - LN3C(6,2,1)                                         H0152830
      B3C(1,1,1) = - QGVC                                              H0152840
      B3C(2,1,1) = - QHVC                                              H0152850
      B3C(1,2,1) = - LL1C(26)                                          H0152860
      B3C(2,2,1) = - LL1C(23)                                          H0152870
      B3C(1,1,2) = - LM2C(1,3)                                         H0152880
      B3C(2,1,2) = - LM2C(1,4)                                         H0152890
      B3C(1,2,2) = - LN3C(5,2,1)                                       H0152900
      B3C(2,2,2) = - LN3C(6,2,1)                                       H0152910
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C*****     WRITE RESULTS FOR THIS TEST SEGMENT                                  H0152920
      WRITE (NUVI, 152) QAVC, LL1C(1), LM2C(1,1), LN3C(1,1,1), QBVC,            H0152930
     1    LL1C(2), LM2C(2,1), LN3C(2,1,1), QCVC, LL1C(3), LM2C(3,1),            H0152940
     2    LN3C(3,1,1), QDVC, LL1C(4), LM2C(4,1), LN3C(4,1,1), QEVC,             H0152950
     3    LL1C(5), LM2C(5,1), LN3C(5,1,1), QFVC, LL1C(6), QGVC,                 H0152960
     4    LM2C(6,1), QHVC, LN3C(6,1,1), QIVC, LL1C(7), QJVC, LM2C(7,1),         H0152970
     5    QKVC, LN3C(7,1,1), QLVC, LL1C(8), QMVC, LM2C(8,1), QNVC,              H0152980
     6    LN3C(8,1,1), QOVC, LL1C(9), QPVC, LM2C(1,2), QQVC,                    H0152990
     7    LN3C(1,2,1), QRVC, LL1C(10), QSVC, LM2C(2,2), QTVC,                   H0153000
     8    LN3C(2,2,1)                                                           H0153010
      WRITE (NUVI,153) QUVC, LL1C(11), QVVC, LM2C(3,2), NUMVC,                  H0153020
     1    LN3C(3,2,1), AVC, LL1C(12), LM2C(4,2), LN3C(4,2,1), BVC,              H0153030
     2    LL1C(13), CVC, LM2C(5,2), DVC, LN3C(5,2,1), EVC, LL1C(14),            H0153040
     3    FVC, LM2C(6,2), GVC, LN3C(6,2,1), HVC, LL1C(15), IVC,                 H0153050
     4    LM2C(7,2), JVC, LN3C(7,2,1), KVC, LL1C(16), LVC, LM2C(1,3),           H0153060
     5    MVC, LN3C(1,1,2), NVC, LL1C(17)                                       H0153070
      WRITE(NUVI,8873)  OVC, LM2C(2,3), PVC,                                    H0153080
     1    LL1C(18), LM2C(3,3), LN3C(2,1,2), QVC, LL1C(19)                       H0153090
      WRITE (NUVI,154) RVC, LM2C(4,3), SVC, LN3C(3,1,2), TVC,                   H0153100
     1    LL1C(20), UVC, LM2C(5,3), VVC, LN3C(4,1,2), MAVC, LL1C(21),           H0153110
     2    MBVC, LM2C(6,3), MCVC, LN3C(5,1,2), MDVC, LL1C(22), MEVC,             H0153120
     3    LM2C(7,3), MFVC, LN3C(6,1,2), MGVC, LL1C(23), MHVC,                   H0153130
     4    LM2C(1,4), MIVC, LL1C(24), LM2C(2,4), LN3C(7,1,2)                     H0153140
      WRITE (NUVI,8870) MJVC, LL1C(25), MKVC, LM2C(3,4), MLVC,                  H0153150
     -                  LN3C(1,2,2), MNVC, LN3C(2,2,2), MOVC, LL1C(26),        H0153160
     +                  MPVC, LM2C(4,4), MQVC, LN3C(3,2,2), MRVC,              H0153170
     =                  LN3C(4,2,2), MSVC, LL1C(27), MTVC, LM2C(5,4),          H0153180
     $                  MUVC, LN3C(5,2,2), MVVC, LL1C(28), AAVC,               H0153190
     .                  LM2C(6,4), ABVC, LN3C(6,2,2), BAVC, LM2C(7,4),         H0153200
     +                  BBVC, LN3C(7,2,2)                                      H0153210
      WRITE(NUVI,8872) BCVC,A1C(5),LM2C(8,2),DDVC, A1C(6),LN3C(8,2,1),          H0153220
     1      DCVC,A1C(7),LN3C(8,2,2),CHCVC,A1C(8),LN3C(8,1,2)                    H0153230
     0WRITE (NUVI,8871) QTVC, CCVC, A1C(1), A2C(1,1), A3C(1,1,1),               H0153240
     1    LL1C(12), CDVC, A1C(2), A2C(2,1), A3C(2,1,1), LM2C(1,4),              H0153250
     2    CAVC, A1C(3), A2C(1,2), A3C(1,2,1), LN3C(6,2,2), DAVC,                H0153260
     3    A1C(4), A2C(2,2), A3C(2,2,1), QGVC, ASVC, B1C(1), B2C(1,1),           H0153270
     4    B3C(1,1,1), QHVC, BSVC, B1C(2), B2C(2,1), B3C(2,1,1),                 H0153280
     5    LL1C(26), CSVC, B1C(3), B2C(3,1), B3C(1,2,1), LL1C(23),               H0153290
     6    DSVC, B1C(4), B2C(4,1), B3C(2,2,1), LM2C(1,3), AAAVC, B1C(5),         H0153300
     7    B2C(1,2), B3C(1,1,2), LM2C(1,4), ABAVC, B1C(6), B2C(2,2),             H0153310
     8    B3C(2,1,2), LN3C(5,2,1), ACAVC, B1C(7), B2C(3,2), B3C(1,2,2),         H0153320
     9    LN3C(6,2,1), ADAVC, B1C(8), B2C(4,2), B3C(2,2,2)                      H0153330
C*****     FORMAT STATEMENTS FOR THIS SEGMENT                                   H0153340
152   FORMAT   (/ 6X,9H0.222E+02,9X,10H0.3333E+02/4(E15.3,E19.4/)/              H0153350
     A    6X,10H0.3956E+03,8X,11H0.41067E+04/4(E16.4,E19.5/)/                   H0153360
     B    5X,14H-0.1234567E+05,4X,14H-0.1234567E+04/4(E19.7,E18.7/)/            H0153370
     C    6X,8H0.89E+01,9X,9H-0.91E+01/4(E14.2,E18.2/)/                         H0153380
     D    5X,13H-0.263512E+04,6X,10H0.4621E+02/4(E18.6,E16.4/)/                 H0153390
     E    6X,7H0.1E+02,11X,7H0.2E+02/2(E13.1,E18.1/)/                           H0153400
     F    6X,7H0.3E+03,11X,7H0.4E+04/2(E13.1,E18.1/)/                           H0153410
     G    5X,8H-0.5E+02,10X,8H-0.6E+03/2(E13.1,E18.1/)/                         H0153420
     H    6X,8H0.71E+02,9X,9H-0.92E+02/2(E14.2,E18.2/)/                         H0153430
     I1H1,4X,10H-0.883E+03,9X,10H0.1414E+04/2(E15.3,E19.4/)/                    H0153440
     J    6X,7H0.1E+02,11X,9H0.562E+03/2(E13.1,E20.3/)/                         H0153450
     K    6X,10H0.2002E+04,7X,10H-0.983E+03/2(E16.4,E17.3/)/                    H0153460
     L    6X,9H0.461E+03,8X,10H-0.165E+03/2(E15.3,E18.3/)/                      H0153470
     M    5X,9H-0.21E+02,10X,9H0.122E+03/2(E14.2,E19.3/)/                       H0153480
     N    6X,7H0.1E-02,11X,7H0.2E-02/2(E13.1,E18.1/)/                           H0153490
     O    6X,9H0.562E+00,9X,9H0.562E+00/2(E15.3,E18.3/)/                        H0153500
     P    5X,8H-0.3E+00,10X,14H-0.3333333E+00/2(E13.1,E24.7/)/                  H0153510
     Q    6X,7H0.4E+00,10X,10H-0.445E+00/2(E13.1,E20.3/)/                       H0153520
     R    5X,9H-0.95E+00,10X,8H0.95E+00/2(E14.2,E18.2/)/                        H0153530
     S    6X,12H0.164239E-01,6X,8H0.36E+00/2(E18.6,E14.2/),1H )                 H0153540
153   FORMAT   (  6X,8H0.21E+00,9X,11H-0.3963E+00/2(E14.2,E20.4/)/              H0153550
     A    6X,10H0.3398E+00,8X,10H0.3398E+00/2(E16.4,E18.4/)/                    H0153560
     B    5X,8H-0.6E+00,11X,7H0.6E+00/2(E13.1,E18.1/)/                          H0153570
     C1H1,5X,7H0.0E+00,11X,7H0.1E+01/E13.1,E18.1//                              H0153580
     D    6X,13H0.4562311E+07,5X,12H0.789453E+06/E19.7,E17.6//                  H0153590
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     E     6X,9H0.449E+06,9X,8H0.25E+04/E15.3,E17.2//                        H0153600
     F     6X,11H0.22223E+07,7X,10H0.3332E+05/E17.5,E17.4//                  H0153610
     G     6X,7H0.3E+01,11X,7H0.3E+01/2(E13.1,E18.1/)/                       H0153620
     H     6X,13H0.9876543E+05,5X,13H0.8765432E+04/2(E19.7,E18.7/)/          H0153630
     I     6X,10H0.4444E+04,8X,11H0.55555E-02/2(E16.4,E19.5/)/               H0153640
     J     6X,7H0.6E-04,11X,8H0.77E+07/2(E13.1,E19.2/)/                      H0153650
     K     6X,9H0.142E+03,9X,10H0.2667E+02/2(E15.3,E19.4/)/                  H0153660
     L     5X,12H-0.36923E+06,6X,10H-0.234E+03/2(E17.5,E16.3/)/              H0153670
     M     6X,8H0.21E+03,9X,9H-0.21E+03/2(E14.2,E18.2/)/                     H0153680
     N     5X,11H-0.5959E+03,8X,10H0.4967E+03/2(E16.4,E18.4/)/               H0153690
     O     6X,7H0.1E+01,11X,7H0.1E+01/2(E13.1,E18.1/)/                       H0153700
     P     5X,8H-0.2E+01,10X,8H-0.2E+01/2(E13.1,E18.1/)/                     H0153710
     Q     6X,9H0.492E+01,8X,11H-0.6527E+04/2(E15.3,E19.4/),                 H0153720
     R1H1,4X,11H-0.7371E+06,8X,9H0.998E-01/2(E16.4,E17.3/)/                  H0153730
     S     6X,12H0.477447E+07,5X,12H-0.93624E+00/2(E18.6,E17.5/),1H )        H0153740
8873  FORMAT(5X,13H-0.846200E-02,6X,11H0.13330E+03/2(E18.6,E17.5/)/           H0153750
     U       6X,12H0.770000E+09,6X,11H0.81625E+08/2(E18.6,E17.5/)/           H0153760
     V      6X,12H0.133400E+05,6X,11H0.37900E+06/2(E18.6,E17.5/)/            H0153770
     W      6X,12H0.300000E+06,6X,11H0.30000E+06/2(E18.6,E17.5/),1H )        H0153780
154   FORMAT (  6X,9H0.299E-01,9X,9H0.299E+02/2(E15.3,E18.3/)/                H0153790
     A     6X,10H0.1419E+06,8X,10H0.1419E+02/2(E16.4,E18.4/)/                H0153800
     B     6X,8H0.76E-01,10X,9H0.987E+03/2(E14.2,E19.3/)/                    H0153810
     C     6X,8H0.31E+02,10X,10H0.4659E+05/2(E14.2,E20.4/)/                  H0153820
     O     5X,10H-0.728E+05,8X,12H-0.93296E+08/2(E15.3,E20.5/)/              H0153830
     E     6X,7H0.6E+07,10X,8H-0.6E+07/2(E13.1,E18.1/)/                      H0153840
     F     5X,11H-0.7914E+07,8X,8H0.16E+07/2(E16.4,E16.2/)/                  H0153850
     G     6X,7H0.1E+02,11X,7H0.1E+02/2(E13.1,E18.1/),                       H0153860
     H1H1,4X,8H-0.2E-01,10X,8H-0.2E-01/2(E13.1,E18.1/)/                      H0153870
     I     6X,7H0.3E-02,10X,8H-0.3E+04/2(E13.1,E18.1/)/                      H0153880
     J     5X,8H-0.4E+05,11X,7H0.4E-03/2(E13.1,E18.1/)/                      H0153890
     K     6X,7H0.5E+06,10X,8H-0.5E-04/2(E13.1,E18.1/)/                      H0153900
     L     5X,8H-0.6E-05,11X,7H0.6E+07/2(E13.1,E18.1/)/                      H0153910
     M     6X,11H0.39393E+01,7X,8H0.62E+04/2(E17.5,E15.2/)/                  H0153920
     N     6X,7H0.9E+00,11X,12H0.765765E+03/2(E13.1,E23.6/),1H )             H0153930
8870  FORMAT (  6X,9H0.352E+09,9X,8H0.35E+03/2(E15.3,E17.2/)/                 H0153940
     (        6X,12H0.147626E+00,6X,9H0.891E-14/2(E18.6,E15.3/)/            H0153950
     *        6X,7H0.9E-07,11X,10H0.9999E+08/2(E13.1,E21.4/)/               H0153960
     )        6X,8H0.13E-04,10X,8H0.13E-04/2(E14.2,E18.2/)/                 H0153970
     /        6X,8H0.77E+00,10X,8H0.77E+00/2(E14.2,E18.2/)/                 H0153980
     /        6X,9H0.878E+01,8X,10H-0.878E+01/2(E15.3,E18.3/)/              H0153990
     A        5X,11H-0.9797E+02,8X,10H0.9797E+02/2(E16.4,E18.4/),           H0154000
     .     1H1,4X,12H-0.10101E+15,6X,12H-0.10101E+15/2(E17.5,E18.5/)/       H0154010
     ,        6X,8H0.68E+12,10X,12H0.357628E+00/2(E14.2,E22.6/)/            H0154020
     -        6X,9H0.798E-03,9X,11H0.76444E+00/2(E15.3,E20.5/)/             H0154030
     +        5X,11H-0.3247E+20,7X,11H-0.2594E+05/2(E16.4,E18.4/)/          H0154040
     1        5X,12H-0.43599E-19,6X,9H-0.12E-04/2(E17.5,E15.2/)/            H0154050
     2        5X,8H-0.6E-09,10X,8H-0.6E+09/2(E13.1,E18.1/)/                 H0154060
     3        5X,11H-0.9119E+06,8X,10H0.9119E-06/2(E16.4,E18.4/)/           H0154070
     4        6X,11H0.39426E+02,6X,12H-0.39426E-02/2(E17.5,E18.5/)/         H0154080
     5        6X,8H0.45E-12,10X,8H0.45E+12/2(E14.2,E18.2/),1H )             H0154090
8872  FORMAT(                                                               H0154100
     6        6X,10H0.4793E+06,8X,10H0.3479E+06/3(E16.4,E18.4/)/            H0154110
     7        6X,10H0.3682E+01,8X,10H0.8236E+02/3(E16.4,E18.4/)/            H0154120
     8       5X,11H-0.2571E+09,8X,10H0.1752E+09/3(E16.4,E18.4/)/            H0154130
     9        6X,10H0.1460E+00,7X,11H-0.1064E+05/3(E16.4,E18.4/))           H0154140
8871  FORMAT(1H1,5X,13H0.1642390E-01,5X,13H0.3600000E+00/5(E19.7,E18.7/)H0154150
     1     /6X,13H0.4562311E+07,5X,13H0.7894530E+06/5(E19.7,E18.7/)/       H0154160
     2      5X,14H-0.6000000E-05,5X,13H0.6000000E+07/5(E19.7,E18.7/)/      H0154170
     3      5X,14H-0.9119000E+06,5X,13H0.9119000E-06/5(E19.7,E18.7/),      H0154180
     4 39H1 EACH GROUP SHOULO BE IOENTICAL EXCEPT/                         H0154190
     5 38H  FOR THE SIGN  OF THE FIRST TWO LINES//                         H0154200
     6      6X,13H0.3000000E+03,5X,13H0.4000000E+04/5(E19.7,E18.7/)/       H0154210
     7      5X,14H-0.5000000E+02,4X,14H-0.6000000E+03/5(E19.7,E18.7/)/     H0154220
     8      6X,13H0.7700000E+00,5X,13H0.7700000E+00/5(E19.7,E18.7/)/       H0154230
     9      6X, 13H0.5000000E+06,4X,14H-0.5000000E-04/5(E19.7,E18.7/)/     H0154240
     A      6X,13H0.4920000E+01,4X,14H-0.6527000E+04/5(E19.7,E18.7/)/      H0154250
     B      5X,14H-0.6000000E-05,5X,13H0.6000000E+07/5(E19.7,E18.7/)/      H0154260
     C      6X,13H0.4444000E+04,5X,13H0.5555500E-02/5(E19.7,E18.7/)/       H0154270
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      D   1H1,4X,14H-0.3692300E+06,4X,14H-0.2340000E+03/5(E19.7,E18.7/)) H0154280
C*****    END OF TEST SEGMENT 015                                        H0154290
C*****  WHEN EXECUTING ONLY SEGMENT 015, THE STOP AND END CARDS          H0154300
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE C= IN COLUMNS             H0154310
C*****  1  AND  2  REMOVED.                                             H0154320
C=    STOP                                                             H0154330
C=    END                                                              H0154340
      STOP                                                             H9999995
      END                                                              H9999999
  SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.   ID 2
  OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT    ID 4
  DATE, INSTALLATION NAME
       DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT    ID 6
C*****    PART3    ************************************************************H0000700
C*****                                                                   H0000705
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS                   H0000710
C*****                                                                   H0000715
C*****    PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3    H0000720
C*****                                                                   H0000725
C*****    JUNE 1974                                                      H0000730
C*****                                                                   H0000735
C*****    PART 3  OF 14 PARTS                                            H0000740
C*****                                                                   H0000745
C*****    SEGMENTS INCLUDED                                              H0000750
C*****                                                                   H0000755
C*****      LASGN - 016 LOGICAL ASSIGNMENT STATEMENTS                    H0000760
C*****                                                                   H0000765
C*****      INTRL - 017 ARITHMETIC ASSIGNMENT STATEMENTS                 H0000770
C*****                                                                   H0000775
C*****      UGOTO - 020 UNCONDITIONAL GO TO STATEMENTS                   H0000780
C*****                                                                   H0000785
C*****      AGOTO - 021 GO TO ASSIGNMENT STATEMENTS                      H0000790
C*****                                                                   H0000795
C*****      CGOTO - 022 COMPUTED GO TO STATEMENTS                        H0000800
C*****                                                                   H0000805
C*****      ARBAD - 030 BASIC ADDITION                                   H0000810
C*****                                                                   H0000815
C*****      ARFAD - 031 DOUBLE PRECISION ADDITION                        H0000820
C*****                                                                   H0000825
C*****      ARBSB - 032 BASIC SUBTRACTION                                H0000830
C*****                                                                   H0000835
C*****      ARFSB - 033 DOUBLE PRECISION SUBTRACTION                     H0000840
C*****                                                                   H0000845
C*****      ARBAS - 034 BASIC ADDITION AND SUBTRACTION                   H0000850
C*****                                                                   H0000855
C*****                                                                   H0010700
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN            H0010705
C*****  SEGMENTS 016, 017, 020, 021, 022, 030, 031, 032, 033, 034,       H0010710
C*****  ARE RUN AS ONE MAIN PROGRAM.                                     H0010715
C*****                                                                   H0010720
      DIMENSION A1S(5), A2S(2,2), A3S(3,3,3), IAC1I(5), IAC2I(2,7)       H0010725
     1  , AC1S(25)                                                       H0010730
      INTEGER MCA3I(2,3,3), GTVI                                       H0010735
      DOUBLE PRECISION AC1D(10), BC2D(7,4), CC3D(7,2,2), DPAVD, ACVD,  H0010740
     1 BCVD, FFCVD, GGCVD, HHCVD, EP1D(43), CCVD, DCVD, A2D(2,2)       H0010745
     2  , A3D(2,2,2), DPCVD                                           H0010750
      LOGICAL MCAVB, MCBVB, MCCVB, MCDVB, MCEVB, MCFVB, MCGVB, MCIVB   H0010755
     1  , MCJVB, MCKVB, MCLVB, MCMVB, MCNVB, MCA1B(7),MCHVB            H0010760
      LOGICAL A1B(2), A2B(2,2), A3B(2,2,2), AVB, BVB, CVB              H0010765
C*****                                                                   H0010770
C*****  END OF SPECIFICATIONS FOR SEGMENTS 016, 017, 020, 021, 022,      H0010775
C*****  030, 031, 032, 033, 034                                          H0010780
C*****                                                                   H0010785
C*************************************************************************H0160010
C*****                                                                   H0160020
C*****                          LASGN - (016)                            H0160030
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C*****                                                                  H0160040
C*************************************************************************H0160050
C*****    GENERAL PURPOSE                                      ASA REF  H0160060
C*****    TO TEST LOGICAL ASSIGNMENTS                          7.1.1.2H0160070
C*****    CONSTANTS USED IN THIS SEGMENT                               H0160080
C*****  S P E C I F I C A T I O N S   SEGMENT 016                       H0160090
C*****                                                                  H0160100
C*****  WHEN EXECUTING ONLY SEGMENT 016, REMOVE THE PRECEDING           H0010790
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS WHICH APPEAR AS    H0010795
C*****  COMMENTS MUST HAVE THE C= IN COL 1 AND 2 REMOVED.               H0010800
C*****                                                                  H0010805
C=     DIMENSION IAC1I(5)                                               H0010810
C=     LOGICAL MCAVB,MCBVB,MCCVB,MCDVB,MCEVB,MCFVB,MCGVB,MCHVB,MCIVB,   H0010815
C=    1   MCJVB, MCKVB, MCLVB, MCMVB, MCNVB ,MCA1B(7)                   H0010820
C=     LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB,CVB                   H0010825
C*****                                                                  H0010830
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS          H0160110
       IRVI = 5                                                         H0070700
       NUVI = 6                                                         H0070705
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0070710
       WRITE(NUVI,0071)                                                 H0070715
0071   FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//           H0070720
      1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                 H0070725
      3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                    H0070730
      4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                 H0070735
      5 23H  VERSION 3     PART 3 ///)                                  H0070740
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER       H0070745
C        PREPARED BY USER                                               H0070750
C        READ, NO LIST                                                  H0070755
C        PREPARED BY USER                                               H0070760
C        READ, NO LIST                                                  H0070765
C        PREPARED BY USER                                               H0070770
C        READ, NO LIST                                                  H0070775
       READ(IRVI,0070)                                                  H0070780
       READ(IRVI,0072)                                                  H0070785
       READ(IRVI,0073)                                                  H0070790
0070   FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)            H0070795
0072   FORMAT(40H   TEST PROGRAMS                         /)            H0070800
0073   FORMAT(40H   FORTRAN COMPILER                      /)            H0070805
       WRITE(NUVI,0070)                                                 H0070810
       WRITE(NUVI,0072)                                                 H0070815
       WRITE(NUVI,0073)                                                 H0070820
C*****                                                                  H0160120
       IAC1I(1) = 25                                                    H0160130
       IAC1I(2) = 10                                                    H0160140
       IAC1I(3) = 15                                                    H0160150
       IAC1I(4) = 25                                                    H0160160
C*****    WRITE HEADER FOR THIS SEGMENT                                 H0160170
       WRITE (NUVI,160)                                                 H0160180
160    FORMAT (1H1,28H LASGN - (016) ASSIGNMENT OF/ 16X,17HLOGIGAL VARIABH0160190
     ALES/21H  ASA REFS. - 7.1.1.2//9H  RESULTS)                        H0160200
C*****    TEST THE ASSIGNMENT OF RELATIONAL EXPRESSIONS          6.2    H0160210
C*****    TO LOGICAL VARIABLES AND ARRAYS                              H0160220
       MCAVB = IAC1I(2) .LT. IAC1I(3)                                   H0160230
       MCBVB = IAC1I(3) .LT. IAC1I(2)                                   H0160240
       MCCVB = IAC1I(1) .EQ. IAC1I(4)                                   H0160250
       MCDVB = IAC1I(2) .EQ. IAC1I(1)                                   H0160260
       MCEVB = IAC1I(1) .LE. IAC1I(4)                                   H0160270
       MCFVB = IAC1I(2) .LE. IAC1I(1)                                   H0160280
       MCGVB = IAC1I(1) .LE. IAC1I(2)                                   H0160290
       MCHVB = IAC1I(1) .EQ. 25                                         H0160300
       MCIVB = IAC1I(2) .EQ. IAC1I(4)                                   H0160310
       MCA1B(1) = IAC1I(2) .NE. IAC1I(3)                                H0160320
       MCA1B(2) = IAC1I(1) .NE. IAC1I(4)                                H0160330
       MCA1B(3) = IAC1I(1) .GT. IAC1I(2)                                H0160340
       MCA1B(4) = IAC1I(2) .GT. IAC1I(1)                                H0160350
       MCA1B(5) = IAC1I(1) .GE. IAC1I(2)                                H0160360
       A1B(1) = IAC1I(1) .GE. IAC1I(4)                                  H0160370
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      A1B(2) = IAC1I(2) .GE. IAC1I(1)                                   H0160380
C*****    TEST THE ASSIGNMENT OF A MIXTURE OF RELATIONAL AND            H0160390
C*****    LOGICAL EXPRESSIONS TO LOGICAL VARIABLES AND ARRAYS    6.3    H0160400
      A2B(1,1) = .TRUE.                                                 H0160410
      A2B(1,2) = .FALSE.                                                H0160420
      AVB = A2B(1,2) .AND. .NOT. A2B(1,1)                               H0160430
      BVB = A2B(1,2) .OR. .NOT. A2B(1,1)                                H0160440
      CVB = IAC1I(2).LT.IAC1I(3).AND.(A2B(1,1).OR..NOT.A2B(1,2)).OR.A2B(H0160450
     A1,1).AND..NOT.A2B(1,2).AND.IAC1I(1).GT.IAC1I(4)                   H0160460
      A2B(2,1) = .NOT. (CVB.AND.MCIVB).AND. IAC1I(2) .NE. IAC1I(3) .AND.H0160470
     1           IAC1I(2) .LT. IAC1I(3) .AND. IAC1I(1) .EQ. IAC1I(4)    H0160480
      A2B(2,2) = A2B(1,2) .AND. IAC1I(1) .EQ. IAC1I(4)                  H0160490
      A3B(1,1,1) = IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,2)                H0160500
      A3B(1,1,2) = IAC1I(2) .GT. IAC1I(3) .AND. A2B(1,1)                H0160510
      A3B(1,2,1) = .NOT. MCA1B(5) .AND.                                 H0160520
     1             A2B(1,1) .OR. IAC1I(1) .EQ. IAC1I(4)                 H0160530
      A3B(1,2,2) = .NOT. (A2B(1,2) .AND. IAC1I(1) .EQ. IAC1I(4)).OR.    H0160540
     1             A2B(1,1) .OR. A2B(1,2)                               H0160550
      A3B(2,1,1) = A2B(1,2) .OR. IAC1I(1) .EQ. IAC1I(4)                 H0160560
      A3B(2,2,1) = .NOT.MCCVB.AND.MCHVB .OR. IAC1I(1) .NE. IAC1I(4) .OR.H0160570
     1             IAC1I(1) .LT. IAC1I(4) .OR. A2B(1,2)                 H0160580
      A3B(2,1,2) = .NOT. A3B(1,1,2) .AND.                               H0160590
     1           ( A2B(1,1) .AND. .NOT. A2B(1,2) )                      H0160600
      A3B(2,2,2) = IAC1I(1) .LT. IAC1I(4) .OR. .NOT. A2B(1,2)           H0160610
      MCJVB=IAC1I(2).GT.IAC1I(3).AND.(A2B(1,1).OR..NOT.A2B(1,2)).OR.A2B(H0160620
     A1,2).AND..NOT.A2B(1,2).ANO.IAC1I(1).GT.IAC1I(4)                   H0160630
      MCKVB = IAC1I(2).LT.IAC1I(3).AND.A2B(1,1).OR.A2B(1,2)             H0160640
      MCLVB = (IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,2)) .OR. A2B(1,1)     H0160650
      MCMVB = A2B(1,2) .OR. IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,1)       H0160660
      MCNVB = A2B(1,2) .OR. (IAC1I(2) .LT. IAC1I(3) .AND. A2B(1,1))     H0160670
C*****    WRITE VARIABLES THAT ARE TRUE                                 H0160680
      WRITE (NUVI,161) MCAVB, MCCVB, MCEVB, MCFVB, MCHVB, MCA1B(1),     H0160690
     A                 MCA1B(3), MCA1B(5), A1B(1), A2B(1,1), A2B(2,1),  H0160700
     B                 A3B(1,2,1), A3B(1,2,2), A3B(2,1,1), A3B(2,1,2),  H0160710
     C                 A3B(2,2,2), CVB, MCKVB, MCLVB, MCMVB, MCNVB      H0160720
161   FORMAT (//32H  ALL ANSWERS BELOW MUST BE TRUE//21(L16/)//)          H0160730
C*****    WRITE VARIABLES THAT ARE FALSE                                H0160740
      WRITE (NUVI,162) MCBVB, MCDVB, MCGVB, MCIVB, MCA1B(2), MCA1B(4),  H0160750
     A                 A1B(2), A2B(1,2), A2B(2,2),A3B(1,1,1),A3B(1,1,2),H0160760
     B                 A3B(2,2,1), AVB, BVB, MCJVB                      H0160770
162   FORMAT (33H  ALL ANSWERS BELOW MUST BE FALSE//15(L16/))             H0160780
C*****    END OF SEGMENT 016                                            H0160790
C*****                                                                  H0160800
C*****  WHEN EXECUTING ONLY SEGMENT 016, THE  STOP  AND  END            H0160810
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=              H0160820
C*****  IN COL  1  AND  2  REMOVED.                                     H0160830
C*****                                                                  H0160840
C=    STOP                                                              H0160850
C=    END                                                               H0160860
C*****************************************************************************H0170010
C*****                                                                  H0170020
C*****                          INTRL - (017)                           H0170030
C*****                                                                  H0170040
C*****************************************************************************H0170050
C*****  GENERAL PURPOSE                                          ASA REF  H0170060
C*****    TO TEST ARITHMETIC ASSIGNMENT STATEMENTS WHERE    TABLE 1,PG13H0170070
C*****    REAL CONSTANTS AND VARIABLES, INTEGER VARIABLES   (LINES 2,3, H0170080
C*****    AND ARRAY ELEMENTS, AND DOUBLE PRECISION CON-          5,6, H0170090
C*****    STANTS AND VARIABLES ARE ASSIGNED TO EACH OTHER         9,10)H0170100
C*****                                                                  H0170110
C*****  S P E C I F I C A T I O N S   SEGMENT 017                       H0170120
C*****                                                                  H0010835
C*****  WHEN EXECUTING ONLY SEGMENT 017, THE SPECIFICATION STATEMENTS   H0010840
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=  IN                  H0010845
C*****  COL  1  ANO  2  REMOVED                                         H0010850
C=    DIMENSION A1S(5),A2S(2,2),A3S(3,3,3),IAC1I(5),IAC2I(2,7)          H0010855
C=    INTEGER MCA3I(2,3,3)                                              H0010860
C=    DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2),DPAVD             H0010865
```

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C*****                                                                  H0010870
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0170130
C*****                                                                  H0070825
C*****  WHEN EXECUTING ONLY SEGMENT 017, THE STATEMENT  NUVI = 6        H0070830
C*****  MUST HAVE THE  C=  IN COL 1  AND  2  REMOVED.                   H0070835
C*****                                                                  H0070840
C=     NUVI = 6                                                         H0070845
C*****                                                                  H0070850
       WRITE (NUVI,170)                                                 H0170140
170    FORMAT(1H1,1X,39HINTRL - (017) ASSIGN INTEGER, REAL, AND/        H0170150
      1 16X,23HDOUBLE PRECISION VALUES/2X,29HASA REFS. - 7.1.1.1.  5.1.1.H0170160
      22/2X,7HRESULTS/)                                                 H0170170
C*****    TEST ASSIGNMENT OF INTEGER VARIABLES              TABLE 1/LN 5,9H0170180
       JACVI = 1                                                        H0170190
       IAC1I(3) = +111                                                  H0170200
       IAC2I(2,3) = -1111                                               H0170210
       MCA3I(2,1,2) = -11111                                            H0170220
       ACVS = IAC1I(3)                                                  H0170230
       A1S(2) = IAC2I(2,3)                                              H0170240
       A2S(2,1) = MCA3I(2,1,2)                                          H0170250
       A3S(2,1,2) = JACVI                                               H0170260
       DPAVD = MCA3I(2,1,2)                                             H0170270
       AC1D(7) = JACVI                                                  H0170280
       BC2D(7,4) = IAC1I(3)                                             H0170290
       CC3D(5,1,2) = IAC2I(2,3)                                         H0170300
       WRITE (NUVI,171)                                                 H0170310
171    FORMAT (/2X,24HASSIGN INTEGER VARIABLES//3X,          21H1 - TO H0170320
      1REAL VARIABLES)                                                  H0170330
       WRITE (NUVI,172)ACVS,A1S(2),A2S(2,1),A3S(2,1,2),DPAVD,AC1D(7),BC2DH0170340
      1(7,4),CC3D(5,1,2)                                                H0170350
172    FORMAT(/8X,8H 111.0 */F14.1//                                    H0170360
      1         7X,9H-1111.0 */F14.1//                                 H0170370
      2         4X,12H  -11111.0 */F14.1//                             H0170380
      3         11X,5H1.0 */F14.1//3X,33H2 - TO DOUBLE PRECISION VARIABLESH0170390
      4         //4X,16H  -0.11111D 05 */D18.5//                       H0170400
      5         11X,9H0.1D 01 */D18.1//                                H0170410
      6         9X,11H0.111D 03 */D18.3//                              H0170420
      7         7X,13H-0.1111D 04 */D18.4/)                            H0170430
C*****    TEST ASSIGNMENT OF INTEGER CONSTANTS                          H0170440
       ACVS = -2222                                                     H0170450
       A1S(2) = +222                                                    H0170460
       A2S(2,1) = -22222                                                H0170470
       A3S(2,1,2) = 2                                                   H0170480
       DPAVD = 2                                                        H0170490
       AC1D(7) = -22222                                                 H0170500
       BC2D(7,4) = -2222                                                H0170510
       CC3D(5,1,2) = +222                                               H0170520
       WRITE (NUVI,173)                                                 H0170530
173    FORMAT (/2X,24HASSIGN INTEGER CONSTANTS//3X,          21H1 - TO RH0170540
      1EAL VARIABLES)                                                   H0170550
       WRITE (NUVI,174)ACVS,A1S(2),A2S(2,1),A3S(2,1,2),DPAVD,AC1D(7),BC2DH0170560
      1(7,4),CC3D(5,1,2)                                                H0170570
174    FORMAT(/6X,9H-2222.0 */F13.1//                                   H0170580
      1         8X,7H222.0 */F13.1//                                   H0170590
      2         3X,12H  -22222.0 */F13.1//                             H0170600
      3        10X,5H2.0 */F13.1/  35H1 2 - TO DOUBLE PRECISION VARIABLES/H0170610
      4        /12X,9H0.2D 01 */D19.1//                                H0170620
      5         5X,16H  -0.22222D 05 */D19.5//                         H0170630
      6         8X,13H-0.2222D 04 */D19.4//                            H0170640
      7        10X,11H0.222D 03 */D19.3/)                              H0170650
C*****    TEST ASSIGNMENT OF BASIC REAL CONSTANTS           TABLE 1/LN 2,10H0170660
       JACVI = 3.3                                                      H0170670
       IAC1I(3) = +333.3E-2                                             H0170680
       IAC2I(2,3) = .3333E+1                                            H0170690
       MCA3I(2,1,2) = -.0033333E3                                       H0170700
       DPAVD = +3.3333                                                  H0170710
       AC1D(7) = .3333333E1                                             H0170720
       BC2D(7,4) = -333.3333E-2                                         H0170730
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      CC3D(5,1,2) = -.0333333E+2                                        H0170740
      WRITE (NUVI,7173)                                                 H0170750
7173  FORMAT (/2X,27HASSIGN BASIC REAL CONSTANTS//3X,          24H1 - H0170760
     1TO INTEGER VARIABLES)                                             H0170770
      WRITE(NUVI,7172)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),DPAVD,AC1D(H0170780
     17),BC2D(7,4),CC3D(5,1,2)                                          H0170790
7172  FORMAT(/9X,3H3 */3(I10/)/8X,4H-3 */I10//3X,33H2 - TO DOUBLE PRECISH0170800
     1ION VARIABLES//                                                   H0170810
     2         8X,13H0.33333D 01 */D19.5//                             H0170820
     3         6X,15H0.3333333D 01 */D19.7//                           H0170830
     4         5X,16H-0.3333333D 01 */D19.7//                          H0170840
     5         6X,15H-0.333333D 01 */D19.6/)                           H0170850
C*****    TEST ASSIGNMENT OF REAL VARIABLES                           H0170860
      ACVS = +.0044444E4                                                H0170870
      A1S(2) = -4444.E-2                                                H0170880
      A2S(2,1) = -44.4                                                  H0170890
      A3S(2,1,2) = 4.4444E+1                                            H0170900
      JACVI = A2S(2,1)                                                  H0170910
      IAC1I(3) = A1S(2)                                                 H0170920
      IAC2I(2,3) = A3S(2,1,2)                                           H0170930
      MCA3I(2,1,2) = ACVS                                               H0170940
      DPAVD = A2S(2,1)                                                  H0170950
      AC1D(7) = A1S(2)                                                  H0170960
      BC2D(7,4) = A3S(2,1,2)                                            H0170970
      CC3D(5,1,2) = ACVS                                                H0170980
      WRITE (NUVI,175)                                                  H0170990
175   FORMAT (/23H  ASSIGN REAL VARIABLES//            27H   1 - TO INTEGH0171000
     1ER VARIABLES)                                                     H0171010
      WRITE (NUVI,176)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),DPAVD,AC1D(H0171020
     17),BC2D(7,4),CC3D(5,1,2)                                          H0171030
176   FORMAT(   /7X,5H-44 */2(I10/)/8X,4H44 */2(I10/), 35H1 2 - TO DOUBLH0171040
     1E PRECISION VARIABLES//                                           H0171050
     2         6X,12H-0.444D 02 */D16.3//                              H0171060
     3         5X,13H-0.4444D 02 */D16.4//                             H0171070
     4         5X,13H0.44444D 02 */D16.5//                             H0171080
     5         5X,13H0.44444D 02 */D16.5/)                             H0171090
C*****    TEST ASSIGNMENT OF D.P. VARIABLES                TABLE 1/LN 3,6H0171100
      DPAVD=5555.55                                                     H0171110
      AC1D(7) = +55555555555555.D-13                                    H0171120
      BC2D(7,4) = -.0000055555555D6                                     H0171130
      CC3D(5,1,2) = -.055555555555555D+2                                H0171140
      JACVI = DPAVD                                                     H0171150
      IAC1I(3) = AC1D(7)                                                H0171160
      IAC2I(2,3) = BC2D(7,4)                                            H0171170
      MCA3I(2,1,2) = CC3D(5,1,2)                                        H0171180
      ACVS = CC3D(5,1,2)                                                H0171190
      A1S(2) = BC2D(7,4)                                                H0171200
      A2S(2,1) = AC1D(7)                                                H0171210
      A3S(2,1,2) = DPAVD                                                H0171220
      WRITE (NUVI,177)                                                  H0171230
177   FORMAT (/2X,33HASSIGN DDUBLE PRECISION VARIABLES/                 H0171240
     1/3X,24H1 - TD INTEGER VARIABLES)                                  H0171250
      WRITE (NUVI,178)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),ACVS,A1S(2)H0171260
     1,A2S(2,1),A3S(2,1,2)                                              H0171270
178   FORMAT(/3X,9H   5555 */I10//9X,3H5 */I10//8X,4H-5 */2(I10/)/3X,21HH0171280
     12 - TD REAL VARIABLES//                                           H0171290
     2         3X,16H-0.5555556E 01 */E17.7//                          H0171300
     3         3X,16H-0.5555556E 01 */E17.7//                          H0171310
     4         3X,16H 0.5555556E 01 */E17.7//                          H0171320
     5         3X,16H  0.555555E 04 */E17.6/)                          H0171330
C*****    TEST ASSIGNMENT OF DOUBLE PRECISION CONSTANTS               H0171340
      JACVI = 66666.D-4                                                 H0171350
      IAC1I(3) = -.00000066666666D7                                     H0171360
      IAC2I(2,3) = -.066666666666666D+2                                 H0171370
      MCA3I(2,1,2)=66666.666666666D-1                                   H0171380
      ACVS = 66666666666666.D0                                          H0171390
      A1S(2) = +66666.D-4                                               H0171400
      A2S(2,1) = -.00000006666666D8                                     H0171410
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      A3S(2,1,2) = -.06666666666666D+2                                  H0171420
      WRITE (NUVI,179)                                                  H0171430
179   FORMAT (   35H1 ASSIGN DOUBLE PRECISION CONSTANTS/               H0171440
     1/3X,24H1 - TO INTEGER VARIABLES)                                  H0171450
      WRITE(NUVI,7170)JACVI,IAC1I(3),IAC2I(2,3),MCA3I(2,1,2),ACVS,A1S(2)H0171460
     1,A2S(2,1),A3S(2,1,2)                                              H0171470
7170  FORMAT(  / 9X,3H6 */I10//8X,4H-6 */2(I10/)/3X,9H   6666 */I10//   H0171480
     1 3X,21H2 - TO REAL VARIABLES//                                    H0171490
     2         3X,16H 0.6666667E 14 */E17.7//                           H0171500
     3         3X,16H   0.66666E 01 */E17.5//                           H0171510
     4         3X,16H-0.6666666E 01 */E17.7//                           H0171520
     5         3X,16H-0.6666667E 01 */E17.7/)                           H0171530
      WRITE (NUVI,7171)                                                 H0171540
7171  FORMAT(//34H ALL TEST OUTPUT SHOULD BE CHECKED/                   H0171550
     1          34H AGAINST THE ASTERISKED (*) FIGURE/                  H0171560
     2          18H WHICH PRECEDES IT)                                  H0171570
C*****    END OF TEST SEGMENT 017                                       H0171580
C*****                                                                  H0171590
C*****  WHEN EXECUTING ONLY SEGMENT 017, THE  STOP  AND  END            H0171600
C*****  CARDS WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                 H0171610
C*****  IN COL 1 AND 2 REMOVED.                                         H0171620
C*****                                                                  H0171630
C=    STOP                                                              H0171640
C=    END                                                               H0171650
C*************************************************************************H0200010
C*****                                                                  H0200020
C*****                          UGOTO - (020)                           H0200030
C*****                                                                  H0200040
C*************************************************************************H0200050
C*****  GENERAL PURPOSE                                      ASA REF   H0200060
C*****    TO TEST UNCONDITIONAL GO TO STATEMENTS           7.1.2.1.1H0200070
C*****  RESTRICTION OBSERVED                                            H0200080
C*****    GO TO STATEMENTS CAUSE BRANCHES ONLY TO          7.1.2 /54H0200090
C*****    EXECUTABLE STATEMENTS                                         H0200100
C*****  GENERAL COMMENTS                                                H0200110
C*****    GO TO STATEMENTS ALSO TESTED IN SEGMENT 193                   H0200120
C*****                                                                  H0200130
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0200140
C*****                                                                  H0070855
C*****  WHEN EXECUTING ONLY SEGMENT 020, THE STATEMENT  NUVI = 6        H0070860
C*****  MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                        H0070865
C*****                                                                  H0070870
C=    NUVI = 6                                                          H0070875
C*****                                                                  H0070880
      WRITE (NUVI,200)                                                  H0200150
200   FORMAT (1H1,1X,33HUGOTO - (020) UNCONDITIONAL GO TO/16X,          H0200160
     19HSTATEMENT//2X,                                                  H0200170
     2 21HASA REFS. - 7.1.2.1.1//2X,7HRESULTS)                          H0200180
C*****    HEADER FOR SEGMENT 020 WRITTEN                                H0200190
C*****    TEST BRANCH FORWARD                                           H0200200
      GO TO 201                                                         H0200210
203   MRRVI = 3                                                         H0200220
      WRITE (NUVI,7200) MRRVI                                           H0200230
7200  FORMAT (/4X,I1)                                                   H0200240
      GO TO 204                                                         H0200250
207   MRRVI = 7                                                         H0200260
      WRITE (NUVI,7200) MRRVI                                           H0200270
      GO TO 208                                                         H0200280
202   MRRVI = 2                                                         H0200290
      WRITE (NUVI,7200) MRRVI                                           H0200300
C*****    TEST BRANCH BACKWARD                                          H0200310
      GO TO 203                                                         H0200320
201   MRRVI = 1                                                         H0200330
      WRITE (NUVI,7200) MRRVI                                           H0200340
      GO TO 202                                                         H0200350
208   MRRVI = 8                                                         H0200360
      WRITE (NUVI,7200) MRRVI                                           H0200370
      GO TO 209                                                         H0200380
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206   MRRVI = 6                                                          H0200390
      WRITE (NUVI,7200) MRRVI                                            H0200400
      GO TO 207                                                          H0200410
204   MRRVI = 4                                                          H0200420
      WRITE (NUVI,7200) MRRVI                                            H0200430
C*****    TEST BRANCH TO STATEMENT IMMEDIATELY AFTER                     H0200440
C*****    UNCONDITIONAL GO TO                                            H0200450
      GO TO 205                                                          H0200460
205   MRRVI = 5                                                          H0200470
      WRITE (NUVI,7200) MRRVI                                            H0200480
      GO TO 206                                                          H0200490
209   WRITE (NUVI,7201)                                                  H0200500
7201  FORMAT (//2X,35HTHIS TEST IS SUCCESSFUL ONLY IF THE/               H0200510
     12X,37HNUMBERS LISTED ABOVE ARE SEQUENTIALLY/                       H0200520
     22X,20HIN ORDER FROM 1 TO 8)                                        H0200530
C*****    END OF TEST SEGMENT 020                                        H0200540
C*****                                                                   H0200550
C*****  WHEN EXECUTING ONLY SEGMENT 020, THE  STOP  AND  END             H0200560
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=               H0200570
C*****  IN COL  1  AND  2  REMOVED.                                      H0200580
C=    STOP                                                               H0200590
C=    END                                                                H0200600
C*************************************************************************H0210010
C*****                                                                   H0210020
C*****                          AGOTO - (021)                            H0210030
C*****                                                                   H0210040
C*************************************************************************H0210050
C*****  GENERAL PURPOSE                                      ASA REF     H0210060
C*****    TO TEST GO TO ASSIGNMENT STATEMENTS                7.1.1.3     H0210070
C*****    AND ASSIGNED GO TO STATEMENTS                      7.1.2.1.2   H0210080
C*****  RESTRICTIONS OBSERVED                                            H0210090
C*****    INTEGER VARIABLE USED IN ASSIGN STATEMENTS       7.1.1.3  /06H0210100
C*****    IS NEVER REFERENCED ELSEWHERE IN THIS SEGMENT    10.2.3   /12H0210110
C*****    ASSIGNED GO TO STATEMENTS CAUSE BRANCHES ONLY    7.1.1.3  /03H0210120
C*****    TO EXECUTABLE STATEMENTS                         7.1.2    /54H0210130
C*****    INTEGER VARIABLE ALWAYS CONTAINS STATEMENT       7.1.2.1.2/20H0210140
C*****    LABEL FROM THE ASSIGNED GO TO LIST                          H0210150
C*****  GENERAL COMMENTS                                              H0210160
C*****    IGVI AND KGVI ARE IMPLICITLY DEFINED             5.3      /07H0210170
C*****    GTVI IS EXPLICITLY DEFINED                       7.2.1.6  /55H0210180
C*****    ASSIGN AND ASSIGNED GO TO ALSO TESTED IN                    H0210190
C*****    SEGMENT 190                                                 H0210200
C*****                                                                H0210210
C*****  S P E C I F I C A T I O N S   SEGMENT 021                      H0210220
C*****                                                                H0010875
C*****  WHEN EXECUTING ONLY SEGMENT 021, THE SPECIFICATION STATEMENTS  H0010880
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL              H0010885
C*****  1  AND  2  REMOVED                                            H0010890
C=    INTEGER GTVI                                                    H0010895
C*****                                                                H0010900
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0210230
C*****                                                                H0070885
C*****  WHEN EXECUTING ONLY SEGMENT 021, THE STATEMENT  NUVI = 6       H0070890
C*****  MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                       H0070895
C*****                                                                H0070900
C=    NUVI = 6                                                        H0070905
C*****                                                                H0070910
      WRITE (NUVI,210)                                                H0210240
210   FORMAT (1H1,1X,33HAGOTO - (021) ASSIGN AND ASSIGNED/16X,        H0210250
     15HGO TO//2X,                                                    H0210260
     231HASA REFS. - 7.1.1.3 AND 7.1.2.1//2X,7HRESULTS)               H0210270
C*****    HEADER FOR SEGMENT 021 WRITTEN                              H0210280
C*****    TEST FORWARD BRANCHING GO TO WITH ONLY ONE                  H0210290
C*****    LABEL IN THE BRANCH LIST                                    H0210300
      ASSIGN 211 TO IGVI                                              H0210310
      GO TO IGVI, (211)                                               H0210320
C*****    TEST FORWARD BRANCHING GO TO WHICH BRANCHES                 H0210330
C*****    TO IMMEDIATELY FOLLOWING STATEMENT                          H0210340
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212   MRRVI = 2                                                    H0210350
      WRITE (NUVI,8212) MRRVI                                      H0210360
      ASSIGN 213 TO GTVI                                           H0210370
      GO TO GTVI, (213)                                            H0210380
C*****    TEST FORWARD BRANCHING GO TO WHERE ALL BRANCHES          H0210390
C*****    ARE IDENTICAL                                            H0210400
213   MRRVI = 3                                                    H0210410
      WRITE (NUVI,8212) MRRVI                                      H0210420
      ASSIGN 214 TO GTVI                                           H0210430
      GO TO GTVI, (214,214,214)                                    H0210440
C*****    TEST FORWARD BRANCHING GO TO WITH SEVERAL UNIQUE         H0210450
C*****    BRANCHES IN THE LIST                                     H0210460
215   MRRVI = 5                                                    H0210470
      WRITE (NUVI,8212) MRRVI                                      H0210480
      ASSIGN 217 TO KGVI                                           H0210490
      ASSIGN 216 TO IGVI                                           H0210500
      GO TO IGVI, (217,218,216,219)                                H0210510
C*****    TEST BACKWARD BRANCHING GO TO WHERE BRANCHES              H0210520
C*****    ARE IDENTICAL                                            H0210530
214   MRRVI = 4                                                    H0210540
      WRITE (NUVI,8212) MRRVI                                      H0210550
      ASSIGN 215 TO IGVI                                           H0210560
      GO TO IGVI, (215,215)                                        H0210570
C*****    TEST BACKWARD BRANCHING GO TO WITH ONLY ONE LABEL        H0210580
C*****    IN THE BRANCH LIST                                       H0210590
211   MRRVI = 1                                                    H0210600
      WRITE (NUVI,8212) MRRVI                                      H0210610
      ASSIGN 212 TO GTVI                                           H0210620
      GO TO GTVI, (212)                                            H0210630
C*****    IN THE FIRST PART OF THIS TEST, ALL GO TO STATEMENTS     H0210640
C*****    WERE EXECUTED ONLY ONCE, IMMEDIATELY AFTER THE           H0210650
C*****    INTEGER VARIABLE WAS DEFINED.  ALL GO TO STATEMENTS      H0210660
C*****    WHICH FOLLOW WILL BE EXECUTED MORE THAN ONCE.            H0210670
C*****    VALUE OF IGVI IS ALWAYS 8216 IN THIS PART OF THE         H0210680
C*****    TEST UNTIL FINAL MESSAGE IS TO BE WRITTEN                H0210690
216   MRRVI = 6                                                    H0210700
      WRITE (NUVI,8212) MRRVI                                      H0210710
      ASSIGN 8216 TO IGVI                                          H0210720
8216  GO TO KGVI, (217,219,7210,7214,8210)                         H0210730
217   MRRVI = 7                                                    H0210740
      ASSIGN 218 TO GTVI                                           H0210750
      GO TO 8211                                                   H0210760
218   MRRVI = 8                                                    H0210770
      ASSIGN 219 TO KGVI                                           H0210780
      GO TO 8213                                                   H0210790
219   MRRVI = 9                                                    H0210800
      ASSIGN 7210 TO KGVI                                          H0210810
      GO TO 8213                                                   H0210820
7210  MRRVI = 10                                                   H0210830
      ASSIGN 7211 TO GTVI                                          H0210840
      GO TO 8211                                                   H0210850
7211  MRRVI = 11                                                   H0210860
      ASSIGN 7212 TO GTVI                                          H0210870
      GO TO 8211                                                   H0210880
7212  MRRVI = 12                                                   H0210890
      ASSIGN 7213 TO GTVI                                          H0210900
      GO TO 8211                                                   H0210910
7213  MRRVI = 13                                                   H0210920
      ASSIGN 7214 TO KGVI                                          H0210930
      GO TO 8213                                                   H0210940
7214  MRRVI = 14                                                   H0210950
      ASSIGN 7215 TO GTVI                                          H0210960
      GO TO 8211                                                   H0210970
7215  MRRVI = 15                                                   H0210980
      ASSIGN 7216 TO GTVI                                          H0210990
      GO TO 8211                                                   H0211000
7216  MRRVI = 16                                                   H0211010
      ASSIGN 7217 TO GTVI                                          H0211020
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      GO TO 8211                                                        H0211030
7217  MRRVI = 17                                                        H0211040
      ASSIGN 7218 TO GTVI                                               H0211050
      GO TO 8211                                                        H0211060
7218  MRRVI = 18                                                        H0211070
      ASSIGN 7219 TO GTVI                                               H0211080
      GO TO 8211                                                        H0211090
7219  MRRVI = 19                                                        H0211100
      ASSIGN 8210 TO KGVI                                               H0211110
      GO TO 8213                                                        H0211120
8210  MRRVI = 20                                                        H0211130
      ASSIGN 8214 TO IGVI                                               H0211140
      GO TO 8213                                                        H0211150
8211  WRITE (NUVI,8212) MRRVI                                           H0211160
8212  FORMAT (/6X,I2)                                                   H0211170
C*****    TEST GO TO WITH CONTINUATION CARD                             H0211180
      GO TO GTVI, (218, 7211, 7212, 7213, 7215, 7216, 7217, 7218,       H0211190
     1            7219)                                                H0211200
8213  WRITE (NUVI,8212) MRRVI                                           H0211210
      GO TO IGVI, (8216,8214)                                           H0211220
8214  WRITE (NUVI,8215)                                                 H0211230
8215  FORMAT (1H0,2X,35HTHIS TEST IS SUCCESSFUL ONLY IF THE/            H0211240
     12X,37HNUMBERS LISTED ABOVE ARE SEQUENTIALLY/                      H0211250
     22X,21HIN ORDER FROM 1 TO 20)                                      H0211260
C*****    END OF TEST SEGMENT 021                                       H0211270
C*****                                                                  H0211280
C*****  WHEN EXECUTING ONLY SEGMENT 021, THE  STOP  AND  END            H0211290
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=              H0211300
C*****  IN COL  1  AND  2  REMOVED.                                     H0211310
C=    STOP                                                              H0211320
C=    END                                                               H0211330
C*************************************************************************H0220010
C*****                                                                  H0220020
C*****                          CGOTO - (022)                           H0220030
C*****                                                                  H0220040
C*************************************************************************H0220050
C*****  GENERAL PURPOSE                                        ASA REF  H0220060
C*****    TO TEST COMPUTED GO TO STATEMENTS              7.1.2.1.3      H0220070
C*****  RESTRICTIONS OBSERVED                                           H0220080
C*****    VALUE OF INTEGER VARIABLE IS NEVER LESS THAN 1   7.1.2.1.3/33H0220090
C*****    AND NEVER LARGER THAN THE NUMBER OF BRANCHES                  H0220100
C*****    INTEGER VARIABLES USED IN COMPUTED GO TO STMNTS. 10.2.8   /09H0220110
C*****    ARE NOT EQUATED TO AVOID SECOND LEVEL            10.3     /13H0220120
C*****    DEFINITION PROBLEMS                                           H0220130
C*****  GENERAL COMMENTS                                                H0220140
C*****    IGVI AND KGVI ARE IMPLICITLY DEFINED             5.3      /07H0220150
C*****    GTVI IS EXPLICITLY DEFINED                       7.2.1.6  /55H0220160
C*****    COMPUTED GO TO ALSO TESTED IN SEGMENT 162                     H0220170
C*****                                                                  H0220180
C*****  S P E C I F I C A T I O N S   SEGMENT 022                       H0220190
C*****                                                                  H0010905
C*****  WHEN EXECUTING ONLY SEGMENT 022, THE SPECIFICATION STATEMENTS   H0010910
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL               H0010915
C*****  1  AND  2  REMOVED                                              H0010920
C*****                                                                  H0010925
C=    INTEGER GTVI                                                      H0010930
C*****                                                                  H0010935
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0220200
C*****                                                                  H0070915
C*****  WHEN EXECUTING ONLY SEGMENT 022, THE STATEMENT  NUVI = 6        H0070920
C*****  MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                        H0070925
C*****                                                                  H0070930
C=    NUVI = 6                                                          H0070935
C*****                                                                  H0070940
      WRITE (NUVI,220)                                                  H0220210
220   FORMAT (1H1,1X,28HCGOTO - (022) COMPUTED GO TO//2X,               H0220220
     120HASA REF. - 7.1.2.1.3//2X,7HRESULTS)                            H0220230
C*****    HEADER FOR SEGMENT 022 WRITTEN                                H0220240
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C*****    TEST FORWARD BRANCHING GO TO WITH ONLY ONE                    H0220250
C*****    LABEL IN BRANCH LIST                                          H0220260
      IGVI = 1                                                          H0220270
      GO TO (221), IGVI                                                 H0220280
C*****    TEST FORWARD BRANCHING GO TO WHICH BRANCHES                   H0220290
C*****    TO IMMEDIATELY FOLLOWING STATEMENT                            H0220300
222   MRRVI = 2                                                         H0220310
      WRITE (NUVI,8222) MRRVI                                           H0220320
      GO TO (223), GTVI                                                 H0220330
C*****                                                                  H0220340
C*****    TEST FORWARD BRANCHING GO TO WHERE SOME BRANCHES               H0220350
C*****    ARE IDENTICAL                                                 H0220360
223   MRRVI = 3                                                         H0220370
      WRITE (NUVI,8222) MRRVI                                           H0220380
      GTVI = 2                                                          H0220390
      GO TO (225,224,225), GTVI                                         H0220400
C*****    TEST FORWARD BRANCHING GO TO WITH SEVERAL UNIQUE               H0220410
C*****    BRANCHES IN LIST                                              H0220420
225   MRRVI = 5                                                         H0220430
      WRITE (NUVI,8222) MRRVI                                           H0220440
      KGVI = 1                                                          H0220450
      IGVI = 3                                                          H0220460
      GO TO (227,228,226,229), IGVI                                     H0220470
C*****    TEST BACKWARD BRANCHING GO TO WHERE SOME                      H0220480
C*****    BRANCHES ARE IDENTICAL                                        H0220490
224   MRRVI = 4                                                         H0220500
      WRITE (NUVI,8222) MRRVI                                           H0220510
      IGVI = 4                                                          H0220520
      GO TO (226,226,226,225), IGVI                                     H0220530
C*****    TEST BACKWARD BRANCHING GO TO WITH ONLY ONE                   H0220540
C*****    LABEL IN BRANCH LIST                                          H0220550
221   MRRVI = 1                                                         H0220560
      WRITE (NUVI, 8222) MRRVI                                          H0220570
      GTVI = 1                                                          H0220580
      GO TO (222), GTVI                                                 H0220590
C*****    IN THE FIRST PART OF THIS TEST, ALL GO TO STATEMENTS          H0220600
C*****    WERE EXECUTED ONLY ONCE, IMMEDIATELY AFTER THE                H0220610
C*****    INTEGER VARIABLE WAS DEFINED.  ALL GO TO STATEMENTS           H0220620
C*****    WHICH FOLLOW WILL BE EXECUTED MORE THAN ONCE.                 H0220630
C*****    VALUE OF IGVI IS ALWAYS 1 IN THIS PART OF THE TEST            H0220640
C*****    UNTIL THE FINAL MESSAGE IS TO BE WRITTEN                      H0220650
226   MRRVI = 6                                                         H0220660
      IGVI = 1                                                          H0220670
      WRITE (NUVI,8222) MRRVI                                           H0220680
8226  GO TO (227,229,7220,7224,8220), KGVI                              H0220690
227   MRRVI = 7                                                         H0220700
      GTVI = 1                                                          H0220710
      GO TO 8221                                                        H0220720
228   MRRVI = 8                                                         H0220730
      KGVI = 2                                                          H0220740
      GO TO 8223                                                        H0220750
229   MRRVI = 9                                                         H0220760
      KGVI = 3                                                          H0220770
      GO TO 8223                                                        H0220780
7220  MRRVI = 10                                                        H0220790
      GTVI = 2                                                          H0220800
      GO TO 8221                                                        H0220810
7221  MRRVI = 11                                                        H0220820
      GTVI = 5                                                          H0220830
      GO TO 8221                                                        H0220840
7222  MRRVI = 12                                                        H0220850
      GTVI = 4                                                          H0220860
      GO TO 8221                                                        H0220870
7223  MRRVI = 13                                                        H0220880
      KGVI = 4                                                          H0220890
      GO TO 8223                                                        H0220900
7224  MRRVI = 14                                                        H0220910
      GTVI = 6                                                          H0220920
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      GO TO 8221                                                        H0220930
7225  MRRVI = 15                                                        H0220940
      GTVI = 7                                                          H0220950
      GO TO 8221                                                        H0220960
7226  MRRVI = 16                                                        H0220970
      GTVI = 9                                                          H0220980
      GO TO 8221                                                        H0220990
7227  MRRVI = 17                                                        H0221000
      GTVI = 8                                                          H0221010
      GO TO 8221                                                        H0221020
7228  MRRVI = 18                                                        H0221030
      GTVI = 3                                                          H0221040
      GO TO 8221                                                        H0221050
7229  MRRVI = 19                                                        H0221060
      KGVI = 5                                                          H0221070
      GO TO 8223                                                        H0221080
8220  MRRVI = 20                                                        H0221090
      IGVI = 2                                                          H0221100
      GO TO 8223                                                        H0221110
8221  WRITE (NUVI,8222) MRRVI                                           H0221120
8222  FORMAT(/6X,I2)                                                    H0221130
C*****    TEST GO TO STATEMENT WITH CONTINUATION LINE                   H0221140
      GO TO (228, 7221, 7229, 7223, 7222, 7225, 7226, 7228,             H0221150
     1       7227), GTVI                                                H0221160
8223  WRITE (NUVI,8222) MRRVI                                           H0221170
      GO TO (8226,8224), IGVI                                           H0221180
8224  WRITE (NUVI,8225)                                                 H0221190
8225  FORMAT (1H0,2X,35HTHIS TEST IS SUCCESSFUL ONLY IF THE/            H0221200
     12X,37HNUMBERS LISTED ABOVE ARE SEQUENTIALLY/                      H0221210
     22X,21HIN ORDER FROM 1 TO 20)                                      H0221220
C*****    END OF TEST SEGMENT 022                                       H0221230
C*****                                                                  H0221240
C*****  WHEN EXECUTING ONLY SEGMENT 022, THE  STOP  AND  END            H0221250
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=              H0221260
C*****  IN COL  1  AND  2  REMOVED.                                     H0221270
C=    STOP                                                              H0221280
C=    END                                                               H0221290
C*************************************************************************H0300010
C*****                                                                  H0300020
C*****                          ARBAD - (030)                           H0300030
C*****                                                                  H0300040
C*************************************************************************H0300050
C*****  GENERAL PURPOSE                                        ASA REF  H0300060
C*****    TEST THAT EXPRESSIONS INVOLVING THE ADDITION           6.1    H0300070
C*****    OF INTEGER OR REAL VALUES MAY BE FORMED                       H0300080
C*****  GENERAL COMMENTS                                                H0300090
C*****    TYPES ARE NEVER MIXED.                                        H0300100
C*****    VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED              H0300110
C*****    IN A VARIETY OF COMBINATIONS.                                 H0300120
C*****                                                                  H0300130
C*****  S P E C I F I C A T I O N S   SEGMENT 030                       H0300140
C*****                                                                  H0010940
C*****  WHEN EXECUTING ONLY SEGMENT 030, THE SPECIFICATION STATEMENTS   H0010945
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL               H0010950
C*****  1  AND  2  REMOVED                                              H0010955
C*****                                                                  H0010960
C=    DIMENSION A1S(5),A2S(2,2),IAC1I(5),IAC2I(2,7)                     H0010965
C*****                                                                  H0010970
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0300150
C*****                                                                  H0070945
C*****  WHEN EXECUTING ONLY SEGMENT 030, THE STATEMENT  NUVI = 6        H0070950
C*****  MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                        H0070955
C*****                                                                  H0070960
C=    NUVI = 6                                                          H0070965
C*****                                                                  H0070970
      WRITE (NUVI,301)                                                  H0300160
301   FORMAT (1H1,1X,28HARBAD - (030) BASIC ADDITION//2X,               H0300170
     -14HASA REF. - 6.1//2X,7HRESULTS)                                  H0300180
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C*****    HEADER FOR SEGMENT 030 WRITTEN                                H0300190
      WRITE (NUVI,302)                                                  H0300200
302   FORMAT (//2X,16HINTEGER ADDITION)                                 H0300210
C*****    TEST 1 - ADD 2 INTEGER VARIABLES (ONE CONTAINS MINUS VALUE)   H0300220
      MRRVI=1                                                           H0300230
      JACVI=2                                                           H0300240
      KBCVI = -2                                                        H0300250
      IHDVI=JACVI+KBCVI                                                 H0300260
      WRITE (NUVI,303) MRRVI, IHDVI                                     H0300270
303   FORMAT (/6H  TEST,I3,I6)                                          H0300280
C*****    TEST 2 - REVERSE VARIABLES IN TEST 1                          H0300290
      MRRVI = 2                                                         H0300300
      IGDVI=KBCVI+JACVI                                                 H0300310
      WRITE (NUVI,303) MRRVI, IGDVI                                     H0300320
C*****    TEST 3 - ADD 2 CONSTANTS                                      H0300330
      MRRVI = 3                                                         H0300340
      IAC1I(1) = 2+(-2)                                                 H0300350
      WRITE (NUVI,303) MRRVI, IAC1I(1)                                  H0300360
C*****    TEST 4 - ADD 2 ARRAY ELEMENTS (ONE CONTAINS MINUS VALUE)      H0300370
      MRRVI = 4                                                         H0300380
      IAC1I(3) = 3                                                      H0300390
      IAC2I(1,3) = - 3                                                  H0300400
      IAC2I(2,2) = IAC1I(3)+IAC2I(1,3)                                  H0300410
      WRITE (NUVI,303) MRRVI, IAC2I(2,2)                                H0300420
C*****    TEST 5 - ADD 8 INTEGER VARIABLES                              H0300430
      MRRVI = 5                                                         H0300440
      LCCVI = -6                                                        H0300450
      MDCVI=-2                                                          H0300460
      NECVI = +18                                                       H0300470
      IFDVI = JACVI+KBCVI+LCCVI+MDCVI+MDCVI+LCCVI+KBCVI+NECVI           H0300480
      WRITE (NUVI,303) MRRVI, IFDVI                                     H0300490
C*****    TEST 6 - ADD COMBINATION OF VARIABLES, ARRAY ELEMENTS         H0300500
C*****    AND CONSTANTS                                                 H0300510
      MRRVI = 6                                                         H0300520
      IAC2I(2,2) = -2                                                   H0300530
      IFDVI = IAC1I(3)+IAC2I(1,3)+IAC2I(2,2)+JACVI+KBCVI+LCCVI+7+1      H0300540
      WRITE (NUVI,303) MRRVI, IFDVI                                     H0300550
C*****    TEST 7 - ADD 2 REAL VARIABLES                                 H0300560
      WRITE (NUVI,304)                                                  H0300570
304   FORMAT (//15H  REAL ADDITION)                                     H0300580
      MRRVI = 7                                                         H0300590
      ACVS = -2.0                                                       H0300600
      BCVS = 2.0E0                                                      H0300610
      HHCVS = ACVS+BCVS                                                 H0300620
      WRITE (NUVI,305) MRRVI, HHCVS                                     H0300630
305   FORMAT (/6H  TEST,I3,F7.1)                                        H0300640
C*****    TEST 8 - REVERSE ORDER OF VARIABLES IN TEST 7                 H0300650
      MRRVI = 8                                                         H0300660
      GGCVS = BCVS + ACVS                                               H0300670
      WRITE (NUVI,305) MRRVI, GGCVS                                     H0300680
C*****    TEST 9 - ADD 4 REAL VARIABLES                                 H0300690
      MRRVI = 9                                                         H0300700
      FFCVS = ACVS + BCVS + ACVS + BCVS                                 H0300710
      WRITE (NUVI,305) MRRVI, FFCVS                                     H0300720
C*****    TEST 10 - ADD 2 REAL CONSTANTS                                H0300730
      MRRVI = 10                                                        H0300740
      A2S(1,2) = 3.5 + (-3.5)                                           H0300750
      WRITE (NUVI,305) MRRVI, A2S(1,2)                                  H0300760
C*****    TEST 11 - ADD REAL ARRAY ELEMENTS                             H0300770
      MRRVI = 11                                                        H0300780
      A1S(1) = -25.E-1                                                  H0300790
      ACVS  = 2.5                                                       H0300800
      A2S  (1,1) = -7.0                                                 H0300810
      FFCVS = A1S(1) + A2S(1,1) + 9.5                                   H0300820
      WRITE ( NUVI,305) MRRVI, FFCVS                                    H0300830
C*****    TEST 12 - ADD COMBINATION OF VARIABLES, ARRAY ELEMENTS        H0300840
C*****    AND CONSTANTS                                                 H0300850
      MRRVI = 12                                                        H0300860
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      FFCVS = A1S(1) + ACVS + 7.0 + A2S(1,1)                            H0300870
      WRITE (NUVI,305) MRRVI, FFCVS                                     H0300880
      WRITE (NUVI,306)                                                  H0300890
306   FORMAT (//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/                 H0300900
     1 31H  THIS SEGMENT TO BE SUCCESSFUL)                              H0300910
C*****    END OF TEST SEGMENT 030                                       H0300920
C*****                                                                  H0300930
C*****  WHEN EXECUTING ONLY SEGMENT 030, THE  STOP  AND  END            H0300940
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=              H0300950
C*****  IN COL  1  AND  2  REMOVED.                                     H0300960
C=    STOP                                                              H0300970
C=    END                                                               H0300980
C*****************************************************************************H0310010
C*****                                                                  H0310020
C*****                          ARFAD - (031)                           H0310030
C*****                                                                  H0310040
C*****************************************************************************H0310050
C*****  GENERAL PURPOSE                                          ASA REF H0310060
C*****    TEST THAT EXPRESSIONS INVOLVING THE ADDITION OF          6.1   H0310070
C*****    DOUBLE PRECISION VALUES MAY BE FORMED                          H0310080
C*****  GENERAL COMMENTS                                                H0310090
C*****    VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A         H0310100
C*****   VARIETY OF COMBINATIONS                                        H0310110
C*****                                                                  H0310120
C*****  S P E C I F I C A T I O N S   SEGMENT 031                       H0310130
C*****                                                                  H0010975
C*****  WHEN EXECUTING ONLY SEGMENT 031, THE SPECIFICATION STATEMENTS   H0010980
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL               H0010985
C*****  1  AND  2  REMOVED                                              H0010990
C*****                                                                  H0010995
C=    DOUBLE PRECISION ACVD,BCVD,FFCVD,GGCVD,HHCVD                      H0011000
C=   1,EP1D(43),BC2D(7,4),CC3D(7,2,2)                                   H0011005
C*****                                                                  H0011010
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0310140
C*****                                                                  H0070975
C*****  WHEN EXECUTING ONLY SEGMENT 031, THE STATEMENT  NUVI = 6        H0070980
C*****  MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                        H0070985
C*****                                                                  H0070990
C=    NUVI = 6                                                          H0070995
C*****                                                                  H0071000
      WRITE (NUVI,310)                                                  H0310150
310   FORMAT (1H1,1X,27HARFAD - (031) D.P. ADDITION//                   H0310160
     -16H  ASA REF. - 6.1//9H  RESULTS)                                 H0310170
C*****    HEADER FOR SEGMENT 031 WRITTEN                                H0310180
      ACVD =  -.0141421356237309D2                                      H0310190
      BCVD = 14.142135623730 95D-1                                      H0310200
      EP1D(20) = -4.1231056256176 6D0                                   H0310210
      BC2D(6,3) =     .20615528128088 3D1                               H0310220
      HHCVD=ACVD+BCVD                                                   H0310230
      GGCVD=BCVD+ACVD                                                   H0310240
      EP1D(34) = .003D3 + (-300.0D-2)                                   H0310250
      FFCVD = BCVD+ACVD+ACVD+BCVD                                       H0310260
      CC3D(7,1,1)=EP1D(20)+BC2D(6,3)+206.155281280883D-2 +41.23105625617H0310270
     166D-1 + EP1D(20)                                                  H0310280
      WRITE (NUVI,312) HHCVD, GGCVD, FFCVD, EP1D(34), CC3D(7,1,1)       H0310290
312   FORMAT (//5(D22.10//)//38H  THE 5 ANSWERS ABOVE SHOULD BE 0 PLUS/ H0310300
     137H  OR MINUS AN ERROR FACTOR OF 0.1D-13)                         H0310310
C*****    END OF TEST SEGMENT 031                                       H0310320
C*****                                                                  H0310330
C*****  WHEN EXECUTING ONLY SEGMENT 031, THE  STOP  AND  END            H0310340
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=              H0310350
C*****  IN COL  1  AND  2  REMOVED.                                     H0310360
C=    END                                                               H0310370
C=    STOP                                                              H0310380
C*****************************************************************************H0320010
C*****                                                                  H0320020
C*****                          ARBSB - (032)                           H0320030
C*****                                                                  H0320040
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C*****************************************************************************H0320050
C*****  GENERAL PURPOSE                                              ASA REF H0320060
C*****    TEST THAT EXPRESSIONS INVOLVING THE SUBTRACTION OF          6.1    H0320070
C*****    INTEGER OR REAL VALUES MAY BE FORMED                               H0320080
C*****  GENERAL COMMENTS                                                     H0320090
C*****    TYPES ARE NEVER MIXED                                              H0320100
C*****    VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A              H0320110
C*****    VARIETY OF COMBINATIONS.                                           H0320120
C*****  S P E C I F I C A T I O N S   SEGMENT 032                            H0320130
C*****                                                                       H0011015
C*****  WHEN EXECUTING ONLY SEGMENT 032, THE SPECIFICATION STATEMENTS        H0011020
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL                    H0011025
C*****  1  AND  2  REMOVED                                                   H0011030
C*****                                                                       H0011035
C=     DIMENSION A1S(5),A2S(2,2),IAC1I(5),IAC2I(2,7)                         H0011040
C*****                                                                       H0011045
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.          H0320140
C*****                                                                       H0071005
C*****  WHEN EXECUTING ONLY SEGMENT 032, THE STATEMENT  NUVI = 6             H0071010
C*****  MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                             H0071015
C*****                                                                       H0071020
C=     NUVI = 6                                                              H0071025
C*****                                                                       H0071030
       WRITE (NUVI,320)                                                      H0320150
320    FORMAT (1H1,1X,31HARBSB - (032) BASIC SUBTRACTION//                   H0320160
     1 17H  ASA REFS. - 6.1//2X,7HRESULTS)                                   H0320170
C*****    HEADER FOR SEGMENT 032 WRITTEN                                     H0320180
       MRRVI = 1                                                             H0320190
       WRITE (NUVI,321)MRRVI                                                 H0320200
321    FORMAT (//2X,4HTEST,I1,1X,19HINTEGER SUBTRACTION)                     H0320210
       JACVI=3                                                               H0320220
       IAC1I(1)=3                                                            H0320230
       IHOVI=JACVI-IAC1I(1)                                                  H0320240
       IGOVI=IAC1I(1)-JACVI                                                  H0320250
       IFDVI=JACVI-IAC1I(1)-IAC1I(1)+JACVI                                   H0320260
       IAC2I(2,3) = 3-2-1                                                    H0320270
       IAC2I(1,1) = 6 - JACVI - IAC1I(1)                                     H0320280
       WRITE (NUVI,323) IHDVI,IGDVI, IFDVI, IAC2I(2,3), IAC2I(1,1)           H0320290
323    FORMAT (/5(I11/))                                                     H0320300
       MRRVI = 2                                                             H0320310
328    WRITE (NUVI,329)MRRVI                                                 H0320320
329    FORMAT (//2X,4HTEST,I1,1X,16HREAL SUBTRACTION)                        H0320330
       ACVS=5.1E1                                                            H0320340
       BCVS=.51E2                                                            H0320350
       HHCVS=ACVS-BCVS                                                       H0320360
       GGCVS=BCVS-ACVS                                                       H0320370
       FFCVS=ACVS-BCVS+BCVS-ACVS                                             H0320380
       A2S(1,2) = 2.1E1                                                      H0320390
       A1S(1) = ACVS - A2S(1,2) - 30.0                                       H0320400
       WRITE (NUVI,324) HHCVS, GGCVS, FFCVS, A1S(1)                          H0320410
324    FORMAT (/4(F11.1/)/34H ALL ABOVE ANSWERS SHOULD BE 0 FOR/             H0320420
     1 31H  THIS SEGMENT TO BE SUCCESSFUL)                                   H0320430
C*****    END OF TEST SEGMENT 032                                            H0320440
C*****                                                                       H0320450
C*****  WHEN EXECUTING ONLY SEGMENT 032, THE  STOP  AND  END                 H0320460
C*****  CAROS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=                   H0320470
C*****  IN COL  1  AND  2  REMOVED.                                          H0320480
C=     STOP                                                                  H0320490
C=     END                                                                   H0320500
C*****************************************************************************H0330010
C*****                                                                       H0330020
C*****                          ARFSB - (033)                                H0330030
C*****                                                                       H0330040
C*****************************************************************************H0330050
C*****  GENERAL PURPOSE                                              ASA REF H0330060
C*****    TEST THAT EXPRESSIONS INVOLVING THE SUBTRACTION OF          6.1    H0330070
C*****    OOUBLE PRECISION VALUES MAY BE FORMED                              H0330080
C*****  GENERAL COMMENTS                                                     H0330090
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C*****    VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A          H0330100
C*****    VARIETY OF COMBINATIONS                                        H0330110
C*****                                                                   H0330120
C*****  S P E C I F I C A T I O N S   SEGMENT 033                        H0330130
C*****                                                                   H0011050
C*****  WHEN EXECUTING ONLY SEGMENT 033, THE SPECIFICATION STATEMENTS    H0011055
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL                H0011060
C*****  1  AND  2  REMOVED                                              H0011065
C*****                                                                   H0011070
C=     DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,GGCVD,HHCVD,DPCVD,FFCVD     H0011075
C=    1,AC1D(10),A2D(2,2),A3D(2,2,2)                                    H0011080
C*****                                                                   H0011085
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0330140
C*****                                                                   H0071035
C*****  WHEN EXECUTING ONLY SEGMENT 033, THE STATEMENT  NUVI = 6         H0071040
C*****  MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                         H0071045
C*****                                                                   H0071050
C=     NUVI = 6                                                          H0071055
C*****                                                                   H0071060
       WRITE (NUVI,330)                                                  H0330150
330    FORMAT (1H1,1X,30HARFSB - (033) D.P. SUBTRACTION//                H0330160
      -16H  ASA REF. - 6.1//2X,7HRESULTS)                                H0330170
C*****    HEADER FOR SEGMENT 033 WRITTEN                                 H0330180
       ACVD=1.0D2                                                        H0330190
       BCVD=.3D1                                                         H0330200
       CCVD=15.D0                                                        H0330210
       AC1D(1) = 60.D-1                                                  H0330220
       A2D(1,1) = -.02D2                                                 H0330230
       A3D(1,2,1) = 4000.D-3                                             H0330240
C*****    TWO TERM SUBTRACTION                                           H0330250
       HHCVD= ACVD-BCVD                                                  H0330260
       HHCVD= HHCVD-97.0D0                                               H0330270
       GGCVD=1.0D0-AC1D(1)                                               H0330280
       GGCVD=GGCVD+5.0D0                                                 H0330290
       DCVD = 4.0D0 - A3D(1,2,1)                                         H0330300
       WRITE (NUVI,331) HHCVD, GGCVD, DCVD                               H0330310
C*****    THREE TERM SUBTRACTION                                         H0330320
       HHCVD= ACVD-BCVD-97.0D0                                           H0330330
       GGCVD = 16.0D0 - CCVD - 1.0D0                                     H0330340
       DCVD = A3D(1,2,1)-A2D(1,1) -6.0D0                                 H0330350
       WRITE (NUVI,331) HHCVD, GGCVD, DCVD                               H0330360
C*****    FOUR TERM SUBTRACTION                                          H0330370
       DPCVD = 6.85565460040104D0                                        H0330380
       FFCVD = (+.34278273002005 2D1)                                    H0330390
       GGCVD = DPCVD - FFCVD - 42.782730020052D-2 - 300D-2               H0330400
       HHCVD=ACVD-AC1D(1)-AC1D(1)-8.8D1                                  H0330410
       DCVD = CCVD - A2D(1,1) - 110.D-1 - AC1D(1)                        H0330420
       WRITE (NUVI,332) HHCVD, DCVD   , GGCVD                            H0330430
331    FORMAT (//3(D22.10/))                                             H0330440
332    FORMAT (//3(D22.10/)//36H  THE ANSWERS ABOVE SHOULD BE 0 PLUS/    H0330450
     137H  OR MINUS AN ERROR FACTOR OF 0.1D-13)                          H0330460
C*****    END OF TEST SEGMENT 033                                        H0330470
C*****                                                                   H0330480
C*****  WHEN EXECUTING ONLY SEGMENT 033, THE  STOP  AND  END             H0330490
C*****  CARDS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=               H0330500
C*****  IN COL  1  AND  2  REMOVED.                                      H0330510
C=     STOP                                                              H0330520
C=     END                                                               H0330530
C*******************************************************************************H0340010
C*****                                                                   H0340020
C*****                          ARBAS - (034)                            H0340030
C*****                                                                   H0340040
C*******************************************************************************H0340050
C*****  GENERAL PURPOSE                                        ASA REF  H0340060
C*****    TEST THAT EXPRESSIONS INVOLVING THE ADDITION AND       6.1    H0340070
C*****    SUBTRACTION (COMBINED) OF INTEGER OR REAL VALUES MAY BE        H0340080
C*****    FORMED.                                                        H0340090
C*****  GENERAL COMMENTS                                                 H0340100
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C*****     TYPES ARE NEVER MIXED.                                           H0340110
C*****     VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN              H0340120
C*****     A VARIETY OF COMBINATIONS.                                       H0340130
C*****                                                                      H0340140
C*****   S P E C I F I C A T I O N S   SEGMENT 034                          H0340150
C*****                                                                      H0011090
C*****   WHEN EXECUTING ONLY SEGMENT 034, THE SPECIFICATION STATEMENTS      H0011095
C*****   WHICH APPEAR AS COMMENTS, MUST HAVE THE C= IN COL                  H0011100
C*****   1  AND  2  REMOVED                                                 H0011105
C*****                                                                      H0011110
C=      DIMENSION A2S(2,2),A3S(3,3,3)                                       H0011115
C=     1,IAC1I(5),IAC2I(2,7),AC1S(25)                                       H0011120
C=      INTEGER MCA3I(2,3,3)                                                H0011125
C*****                                                                      H0011130
C*****   O U T P U T   T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H0340160
C*****                                                                      H0071065
C*****   WHEN EXECUTING ONLY SEGMENT 034, THE STATEMENT  NUVI = 6           H0071070
C*****   MUST HAVE THE C= IN COL 1 AND 2 REMOVED.                           H0071075
C*****                                                                      H0071080
C=      NUVI = 6                                                            H0071085
C*****                                                                      H0071090
        WRITE (NUVI,340)                                                    H0340170
340     FORMAT (1H1,1X,32HARBAS - (034) BASIC ADDITION AND/14X,             H0340180
       113H  SUBTRACTION//16H  ASA REF. - 6.4//                             H0340190
       22X,7HRESULTS)                                                       H0340200
C*****     HEADER FOR SEGMENT 034 WRITTEN                                   H0340210
        WRITE (NUVI,341)                                                    H0340220
341     FORMAT   (//2X,26HTEST1 INTEGER ADD AND SUBT)                       H0340230
        JACVI = 5                                                           H0340240
        KBCVI = 1                                                           H0340250
        LCCVI = 10                                                          H0340260
        MDCVI = -2                                                          H0340270
        IAC1I(2) = 3                                                        H0340280
        IAC2I(2,2) = -3                                                     H0340290
        IHDVI = JACVI+KBCVI-LCCVI+MDCVI-IAC1I(2)+9                          H0340300
        IGDVI = (JACVI+KBCVI) - (MDCVI-IAC1I(2)) - 11                       H0340310
        IFDVI =(6 + (KBCVI - (LCCVI+MDCVI))) + 1                            H0340320
        MCA3I(1,1,1) = IAC2I(2,2) - JACVI - MDCVI - KBCVI + 7 + 0           H0340330
        WRITE (NUVI,342) IHDVI,IGDVI, IFDVI, MCA3I(1,1,1)                   H0340340
342     FORMAT (/4(I11/))                                                   H0340350
C*****     HEADER FOR TEST2                                                 H0340360
        WRITE (NUVI,344)                                                    H0340370
344     FORMAT   (/2X,24HTEST2 REAL ADD AND SUBTR)                          H0340380
        ACVS = 5.0                                                          H0340390
        BCVS = 1.0                                                          H0340400
        CCVS = 10.0                                                         H0340410
        DCVS = -.2E+1                                                       H0340420
        AC1S(1) = 30.E-1                                                    H0340430
        [illegible]) = 6.0                                                  H0340440
        [illegible] + BCVS - CCVS + DCVS +9.0-AC1S(1)                       H0340450
        [illegible] 0) -11.0  - ( DCVS-AC1S(1))                             H0340460
        [illegible]VS-(CCVS+DCVS))) + 1.0                                   H0340470
        [illegible]) - CCVS + 8.0 - 4.0                                     H0340480
        [illegible] HHDVS, GGDVS, FFDVS, A3S(1,1,2)                         H0340490
[illegible] FORMAT [illegible]//+(F11.1/)/35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/   H0340500
       [illegible]TH  THIS SEGMENT TO BE SUCCESSFUL)                        H0340510
C*****     END OF TEST SEGMENT 034                                          H0340520
C*****                                                                      H0340530
C*****   WHEN EXECUTING ONLY SEGMENT 034, THE  STOP  AND  END               H0340540
C*****   CARDS WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=              H0340550
C*****   IN COLUMNS  1  AND  2  REMOVED.                                    H0340560
C=      STOP                                                                H0340570
        END                                                                 H0340580
        STOP                                                                H9999995
                                                                            H9999999
                    [illegible] LEVEL
                    [illegible]   DOUBLE SPACE ON OUTPUT.   ID 2
                    [illegible]
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   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT     ID 4
 DATE, INSTALLATION NAME
      DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT     ID 6
C*****    PART4     ************************************************
C*****
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS
C*****
C*****    PREPARED BY THE NATIONAL BUREAU OF STANDARDS       VERSION 3
C*****
C*****    JUNE 1973
C*****
C*****    PART 4  OF 14 PARTS
C*****
C*****    SEGMENTS INCLUDED
C*****
C*****      ARFAS - 035 ADDITION AND SUBTRACTION OF DP VALUES
C*****
C*****      ARBMI - 036 MULTIPLICATION OF INTEGER VALUES
C*****
C*****      ARBMR - 037 MULTIPLICATION OF REAL VALUES
C*****
C*****      ARFMD - 038 MULTIPLICATION OF DOUBLE PRECISION VALUES
C*****
C*****      ARBDV - 039 DIVISION OF INTEGER AND REAL VALUES
C*****
C*****      ARFDV - 040 DIVISION OF DOUBLE PRECISION VALUES
C*****
C*****      ARBEX - 041 EXPONENTIATION OF INTEGER AND REAL VALUES
C*****
C*****      ARFEX - 042 EXPONENTIATION OF DOUBLE PRECISION VALUES
C*****
C*****      ARBHI - 043 HIERARCHY OF OPERATORS AND PARENTHESES
C*****
C*****      SBB67 - 050 SUBSCRIPTS OF INTEGER AND REAL ARRAYS  V,  K
C*****
C*****      SBB45 - 051 SUBSCRIPTS OF INT., REAL ARRAYS  V+K, V-K
C*****
C*****      SBB13 - 052 SUBSCRIPTS OF INT, REAL ARRAYS C*V, C*V+K, C*V-K
C*****
C*****      SBF17 - 053 SUBSCRIPTS OF DP ARRAYS V, K, C*V, C*V+K, C*V-K
C*****                                               V+K, V-K
C*****
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN SEGMENTS
C*****  035, 036, 037, 038, 039, 040, 041, 042, 043, 050, 051, 052, 053
C*****  ARE RUN AS ONE MAIN PROGRAM.
C*****
      INTEGER MCA3I(2,3,3)
      DOUBLE PRECISION ACVD, BCVD, CCVD, DCVD, CCDVD, DDDVD
     1 , EEDVD, FFDVD, GGDVD, HHDVD, AC1D(10), BC2D(7,4), CC3D(7,2,2)
     2 , EP1D(43), VTAVD, WTAVD, AADVD
      DIMENSION A2S(2,2), A3S(3,3,3), AC1S(25), AC2S(5,6)
     1 , IAC1I(5), IAC2I(2,7)
C*****
C*****  END OF SPECIFICATIONS FOR SEGMENTS
C*****  035, 036, 037, 038, 039, 040, 041, 042, 043, 050, 051, 052, 053
C***********************************************************************
C*****
C*****                         ARFAS - (035)
C*****
C***********************************************************************
C*****  GENERAL PURPOSE                                         ASA REF
C*****    TEST THAT EXPRESSIONS INVOLVING THE ADDITION AND        6.1
C*****    SUBTRACTION (COMBINED) OF DOUBLE PRECISION VALUES
C*****    MAY BE FORMED
C*****  GENERAL COMMENTS
C*****    VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A
C*****    VARIETY OF COMBINATIONS
C*****
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C*****  S P E C I F I C A T I O N S  SEGMENT 035                          H0350140
C*****                                                                   H0011270
C*****  WHEN EXECUTING ONLY SEGMENT 035, REMOVE THE PRECEOING            H0011275
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS WHICH APPEAR AS    H0011280
C*****  COMMENTS MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVEO.          H0011285
C*****                                                                   H0011290
C=     OOUBLE PRECISION ACVO,BCVO,CCVO,DCVO,FFDVD,GGOVO,HHOVO            H0011295
C=    1,AC1O(10),BC2O(7,4),CC3O(7,2,2)                                   H0011300
C*****                                                                   H0011305
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS.          H0350150
       IRVI = 5                                                          H0071200
       NUVI = 6                                                          H0071205
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                         H0071210
       WRITE(NUVI,0071)                                                  H0071215
0071   FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0071220
      1 42H  PREPARED BY NATIONAL BUREAU OF STANOAROS//                  H0071225
      3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0071230
      4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0071235
      5 23H  VERSION 3     PART 4 ///)                                   H0071240
C*****  3 OF 6 INPUT CAROS IOENTIFY THE USERS SYSTEM AND COMPILER        H0071245
C        PREPAREO BY USER                                                H0071250
C        READ, NO LIST                                                   H0071255
C        PREPAREO BY USER                                                H0071260
C        READ, NO LIST                                                   H0071265
C        PREPAREO BY USER                                                H0071270
C        REAO, NO LIST                                                   H0071275
       READ(IRVI,0070)                                                   H0071280
       READ(IRVI,0072)                                                   H0071285
       READ(IRVI,0073)                                                   H0071290
0070   FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)             H0071295
0072   FORMAT(40H   TEST PROGRAMS                         /)             H0071300
0073   FORMAT(40H   FORTRAN COMPILER                      /)             H0071305
       WRITE(NUVI,0070)                                                  H0071310
       WRITE(NUVI,0072)                                                  H0071315
       WRITE(NUVI,0073)                                                  H0071320
       WRITE (NUVI,350)                                                  H0350160
350    FORMAT (1H1,1X,32HARFAS - (035) D.P. ADD AND SUBTR//2X,           H0350170
      -14HASA REF. - 6.1//2X,7HRESULTS)                                  H0350180
C*****    HEAOER FOR SEGMENT 035 WRITTEN                                 H0350190
       ACVO = 5.0D0                                                      H0350200
       BCVO = 10.0D-1                                                    H0350210
       CCVO = 10.0D0                                                     H0350220
       DCVO = -0.2D1                                                     H0350230
       AC1O(1)= 300.0D-2                                                 H0350240
       BC2O(6,3) = 400.D-2                                               H0350250
       AC1O(2) = .2481632642481605                                       H0350260
       BC2O(5,3) = -.124081632124O8D5                                    H0350270
       HHOVO = ACVO + BCVO - CCVO + OCVO + 9.000 - AC1O(1)               H0350280
       GGOVO = (ACVO + 1.0E0) - 11.0E0 -(DCVO - AC1O(1))                 H0350290
       FFOVO = (6.000+(BCVO-(CCVO+OCVO))) + 10.0D-1                      H0350300
       CC3O(6,1,1) = CCVO-OCVO+BC2O(6,3)-ACVO-11.000                     H0350310
       CC3O(5,1,2) = AC1O(2) + BC2O(5,3) - 12408.163212408DO             H0350320
       WRITE (NUVI,351) HHOVO, GGOVO, FFOVO, CC3O(6,1,1), CC3O(5,1,2)    H0350330
351    FORMAT (//5(022.10/)//35H  THE ANSWERS ABOVE SHOULO BE 0 FOR/     H0350340
      1 32H  THIS SEGMENT TO BE SUCCESSFUL./36H  VALUES WITH EXPONENTS LEH0350350
      2SS THAN   /31H  10**(-14) ARE CONSIOEREO ZERO)                    H0350360
C*****    END OF TEST SEGMENT 035                                        H0350370
C*****                                                                   H0350380
C*****  WHEN EXECUTING ONLY SEGMENT 035, THE  STOP  AND  END             H0350390
C*****  CAROS, WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=               H0350400
C*****  IN COL  1  ANO  2  REMOVEO.                                      H0350410
C=     STOP                                                              H0350420
C=     ENO                                                               H0350430
C*****************************************************************************H0360010
C*****                                                                   H0360020
C*****                          ARBMI - (036)                            H0360030
C*****                                                                   H0360040
C*****************************************************************************H0360050
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C*****  GENERAL PURPOSE                                          ASA REF H0360060
C*****    TEST THAT EXPRESSIDNS INVOLVING MULTIPLICATIDN OF        6.1   H0360070
C*****    INTEGER VALUES MAY BE FDRMED.                                  H0360080
C*****  GENERAL COMMENTS                                                 H0360090
C*****    INTEGER SUBTRACTIDN ASSUMED WDRKING                            H0360100
C*****  * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED               H0360110
C*****    IN A VARIETY DF CDMBINATIDNS.                                  H0360120
C*****                                                                   H0360130
C*****  S P E C I F I C A T I D N S  SEGMENT 036                         H0360140
C*****                                                                   H0011310
C*****  WHEN EXECUTING ONLY SEGMENT 036, THE SPECIFICATIDN STATEMENTS    H0011315
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS          H0011320
C*****  1  AND  2  REMOVED.                                              H0011325
C*****                                                                   H0011330
C=     DIMENSIDN IAC1I(5), IAC2I(2,7)                                    H0011335
C*****                                                                   H0011340
C*****  D U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0360150
C*****                                                                   H0071325
C*****  WHEN EXECUTING DNLY SEGMENT 036, THE FOLLOWING STATEMENT         H0071330
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.         H0071335
C*****                                                                   H0071340
C=     NUVI = 6                                                          H0071345
C*****                                                                   H0071350
       WRITE (NUVI,360)                                                  H0360160
360    FDRMAT (1H1, 1X,36HARBMI - (036) INTEGER MULTIPLICATION//         H0360170
      116H  ASA REF. - 6.1//2X,7HRESULTS)                                H0360180
C*****    HEADER FDR SEGMENT 036 WRITTEN                                 H0360190
       JACVI=1                                                           H0360200
       KBCVI=2                                                           H0360210
       LCCVI=0                                                           H0360220
       MDCVI=-5                                                          H0360230
       IAC1I(2) = -10                                                    H0360240
       IAC2I(1,2) = 3                                                    H0360250
       IHDVI=JACVI*KBCVI                                                 H0360260
       IGDVI=KBCVI*MDCVI*LCCVI                                           H0360270
       IFDVI = MDCVI*JACVI*IAC1I(2)*3                                    H0360280
       IEDVI=-3*JACVI*(-MDCVI)*JACVI*KBCVI                               H0360290
       IDDVI=KBCVI*KBCVI*KBCVI*KBCVI*KBCVI*JACVI                         H0360300
       ICDVI = (-IAC1I(2))*JACVI*KBCVI*JACVI*KBCVI*JACVI*1               H0360310
       IAC2I(1,1)=IAC2I(1,2)*MDCVI*IAC1I(2)*2                            H0360320
       IHDVI = IHDVI - 2                                                 H0360330
       IFDVI = IFDVI - 150                                               H0360340
       IEDVI = IEDVI + 30                                                H0360350
       IDDVI = IDDVI - 32                                                H0360360
       ICDVI = ICDVI - 40                                                H0360370
       IAC2I(1,1) = IAC2I(1,1) - 300                                     H0360380
       WRITE (NUVI,361) IHDVI, IGDVI, IFDVI, IEDVI, IDDVI, ICDVI,       H0360390
     1                  IAC2I(1,1)                                       H0360400
361    FDRMAT (//7(I10/)//35H  ALL ABDVE ANSWERS SHOULD BE 0 FOR/        H0360410
     1  31H  THIS SEGMENT TD BE SUCCESSFUL)                              H0360420
C*****    END DF TEST SEGMENT 036                                        H0360430
C*****                                                                   H0360440
C*****  WHEN EXECUTING DNLY SEGMENT 036, THE  STOP  AND  END             H0360450
C*****  CARDS, WHICH APPEAR AS CDMMENTS, MUST HAVE THE  C=               H0360460
C*****  IN CDL  1  AND  2  REMDVED.                                      H0360470
C=     STOP                                                              H0360480
C=     END                                                               H0360490
C*************************************************************************H0370010
C*****                                                                   H0370020
C*****                          ARBMR - (037)                            H0370030
C*****                                                                   H0370040
C*************************************************************************H0370050
C*****  GENERAL PURPDSE                                          ASA REF H0370060
C*****    TEST THAT EXPRESSIDNS INVDLVING MULTIPLICATIDN OF        6.1   H0370070
C*****    REAL VALUES MAY BE FORMED                                      H0370080
C*****  GENERAL CDMMENTS                                                 H0370090
C*****    REAL SUBTRACTION ASSUMED WORKING                               H0370100
C*****  * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A          H0370110
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C*****    VARIETY OF COMBINATIONS.                                      H0370120
C*****                                                                  H0370130
C*****  S P E C I F I C A T I O N S  SEGMENT 037                        H0370140
C*****                                                                  H0011345
C*****  WHEN EXECUTING ONLY SEGMENT 037, THE SPECIFICATION STATEMENTS   H0011350
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS         H0011355
C*****  1  AND  2  REMOVED.                                            H0011360
C*****                                                                  H0011365
C=     DIMENSION A2S(2,2),AC1S(25)                                      H0011370
C*****                                                                  H0011375
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0370150
C*****                                                                  H0071355
C*****  WHEN EXECUTING ONLY SEGMENT 037, THE FOLLOWING STATEMENT        H0071360
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.        H0071365
C*****                                                                  H0071370
C=     NUVI = 6                                                         H0071375
C*****                                                                  H0071380
       WRITE (NUVI,370)                                                 H0370160
370    FORMAT (1H1,1X,33HARBMR - (037) REAL MULTIPLICATION//2X,         H0370170
      114HASA REF. - 6.1//2X,7HRESULTS)                                 H0370180
C*****    HEADER FOR SEGMENT 037 WRITTEN                               H0370190
       ACVS = 1.0                                                       H0370200
       BCVS = 0.2E2                                                     H0370210
       CCVS = -1.0                                                      H0370220
       DCVS = 0.0                                                       H0370230
       AC1S(1) = .5E+1                                                  H0370240
       HHDVS=ACVS*BCVS                                                  H0370250
       GGDVS=BCVS*BCVS*1.0                                              H0370260
       FFDVS=2.0*AC1S(1)*ACVS*ACVS                                      H0370270
       EEDVS=ACVS*BCVS*CCVS*DCVS*AC1S(1)                                H0370280
       DDDVS=AC1S(1)*ACVS*BCVS*1.0E1*ACVS*ACVS                          H0370290
       CCDVS=CCVS*CCVS*CCVS*3.E0*ACVS*ACVS*ACVS                         H0370300
       A2S(1,1) = ACVS*CCVS*2.                                          H0370310
       HHDVS = HHDVS - 20.0                                             H0370320
       GGDVS = GGDVS - 400.0                                            H0370330
       FFDVS = FFDVS - 10.0                                             H0370340
       DDDVS = DDDVS - 1000.0                                           H0370350
       CCDVS = CCDVS + 3.0                                              H0370360
       A2S(1,1) = A2S(1,1) + 2.                                         H0370370
       WRITE (NUVI,371) HHDVS, GGDVS, FFDVS, EEDVS, DDDVS, CCDVS,       H0370380
      1                 A2S(1,1)                                        H0370390
371    FORMAT (//7(F11.1/)//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/      H0370400
      1 31H  THIS SEGMENT TO BE SUCCESSFUL)                             H0370410
C*****    END OF TEST SEGMENT 037                                      H0370420
C*****  WHEN EXECUTING ONLY SEGMENT 037, THE STOP AND END CARDS         H0370430
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS     H0370440
C*****  1  AND  2  REMOVED.                                            H0370450
C=     STOP                                                             H0370460
C=     END                                                              H0370470
C*******************************************************************H0380010
C*****                                                                  H0380020
C*****                          ARFMD - (038)                           H0380030
C*****                                                                  H0380040
C*******************************************************************H0380050
C*****  GENERAL PURPOSE                                    ASA REF      H0380060
C*****    TEST THAT EXPRESSIONS INVOLVING THE MULTIPLICATION  6.1       H0380070
C*****    OF DOUBLE PRECISION VALUES MAY BE FORMED                      H0380080
C*****  GENERAL COMMENTS                                                H0380090
C*****  * DP ADDITION AND SUBTRACTION ASSUMED WORKING.                  H0380100
C*****  * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A         H0380110
C*****    VARIETY OF COMBINATIONS.                                      H0380120
C*****                                                                  H0380130
C*****  S P E C I F I C A T I O N S  SEGMENT 038                        H0380140
C*****                                                                  H0011380
C*****  WHEN EXECUTING ONLY SEGMENT 038, THE SPECIFICATION STATEMENTS   H0011385
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS         H0011390
C*****  1  AND  2  REMOVED.                                            H0011395
C*****                                                                  H0011400
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C=    DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,EEDVD,DDDVD,CCDVD                H0011405
C=   1,FFDVD, GGDVD,HHDVD,AC1D(10),BC2D(7,4), CC3D(7,2,2)                   H0011410
C*****                                                                     H0011415
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.         H0380150
C*****                                                                     H0071385
C*****  WHEN EXECUTING ONLY SEGMENT 038, THE FOLLOWING STATEMENT           H0071390
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.           H0071395
C*****                                                                     H0071400
C=    NUVI = 6                                                             H0071405
C*****                                                                     H0071410
      WRITE (NUVI,380)                                                     H0380160
380   FORMAT (1H1,1X,33HARFMD - (038) D.P. MULTIPLICATION//  2X,           H0380170
     -15H ASA REF. - 6.1//2X,7HRESULTS)                                    H0380180
C*****    HEADER FOR SEGMENT 038 WRITTEN                                   H0380190
      ACVD=1.0D0                                                           H0380200
      BCVD=2.0                                                             H0380210
      CCVD=-30.0D-1                                                        H0380220
      DCVD=1.0D1                                                           H0380230
      AC1D(1) = 1.1D1                                                      H0380240
      CC3D(3,1,2) = .262144D6                                              H0380250
      CC3D(6,1,2) = -2000.D-3                                              H0380260
      CC3D(3,2,2) = 409.6D1                                                H0380270
      HHDVD=ACVD*BCVD                                                      H0380280
      GGDVD=ACVD*0.0D0*CCVD                                                H0380290
      FFDVD = AC1D(1)*ACVD*ACVD*ACVD                                       H0380300
      EEDVD=CCVD*CCVD*ACVD*1.0D0*BCVD                                      H0380310
      DDDVD=ACVD*2.0D1*ACVD*DCVD*1.0E0*CCVD                                H0380320
      CCDVD=ACVD*BCVD*CCVD*CCVD*CCVD*BCVD*ACVD                             H0380330
      BC2D(3,4) = DCVD*(400.D-2)*CC3D(6,1,2)                               H0380340
      BC2D(2,3) = CC3D(3,1,2) * CC3D(3,2,2)                                H0380350
      HHDVD = HHDVD - 2.0D0                                                H0380360
      FFDVD = FFDVD - 11.0D0                                               H0380370
      EEDVD = EEDVD - 18.0D0                                               H0380380
      DDDVD = DDDVD + 600.0D0                                              H0380390
      CCDVD = CCDVD + 108.0D0                                              H0380400
      BC2D(3,4) = BC2D(3,4) -(-80.D0)                                      H0380410
      BC2D(2,3) = BC2D(2,3) - 1.07374182 4D9                               H0380420
      WRITE (NUVI,381) HHDVD, GGDVD, FFDVD, EEDVD, DDDVD, CCDVD,           H0380430
     1                 BC2D(3,4) , BC2D(2,3)                               H0380440
381   FORMAT (//8(D22.10/)//35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/         H0380450
     1 31H  THIS SEGMENT TO BE SUCCESSFUL)                                 H0380460
C*****    END OF TEST SEGMENT 038                                          H0380470
C*****  WHEN EXECUTING DNLY SEGMENT 038, THE STDP AND END CARDS            H0380480
C*****  WHICH APPEAR AS CDMMENT CARDS MUST HAVE THE  C=  IN CDLUMNS        H0380490
C*****  1  AND  2  REMDVED.                                                H0380500
C=    STOP                                                                 H0380510
C=    END                                                                  H0380520
C*************************************************************************H0390010
C*****                                                                     H0390020
C*****                          ARBDV - (039)                              H0390030
C*****                                                                     H0390040
C*************************************************************************H0390050
C*****                                                                     H0390060
C*****  GENERAL PURPOSE                                        ASA REF    H0390070
C*****    TEST BASIC DIVISION,                                 6.1        H0390080
C*****    INTEGER AND REAL (SP) TYPES ONLY                                 H0390090
C*****                                                                     H0390100
C*****  S P E C I F I C A T I O N S  SEGMENT 039                           H0390110
C*****                                                                     H0011420
C*****  WHEN EXECUTING ONLY SEGMENT 039, THE SPECIFICATION STATEMENTS      H0011425
C*****  WHICH APPEAR AS CDMMENTS, MUST HAVE THE  C=  IN COLUMNS            H0011430
C*****  1  AND  2  REMDVED.                                                H0011435
C*****                                                                     H0011440
C=    DIMENSION A2S(2,2),IAC1I(5),IAC2I(2,7),AC1S(25)                      H0011445
C*****                                                                     H0011450
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.         H0390120
C*****                                                                     H0071415
C*****  WHEN EXECUTING ONLY SEGMENT 039, THE FOLLOWING STATEMENT           H0071420
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C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.          H0071425
C*****                                                                    H0071430
C=     NUVI = 6                                                           H0071435
C*****                                                                    H0071440
       WRITE (NUVI,390)                                                   H0390130
390    FORMAT (1H1,1X,30HARBDV - (039) INTEGER AND REAL/15X,              H0390140
      -9H DIVISION//2X,14HASA REF. - 6.1/ /2X,7HRESULTS)                  H0390150
C*****    HEADER FOR SEGMENT 039 WRITTEN                                  H0390160
       WRITE (NUVI,391)                                                   H0390170
391    FORMAT   (//2X,22HTEST1 INTEGER DIVISION)                          H0390180
       JACVI=1                                                            H0390190
       KBCVI=2                                                            H0390200
       LCCVI=0                                                            H0390210
       MDCVI=10                                                           H0390220
       IAC1I(2) = 1                                                       H0390230
       IAC2I(1,4) = -8                                                    H0390240
       IHDVI=KBCVI/JACVI                                                  H0390250
       IGDVI=MDCVI/KBCVI/JACVI                                            H0390260
       IFDVI=LCCVI/JACVI/JACVI/1                                          H0390270
       IEDVI = MDCVI/KBCVI/IAC1I(2)/IAC1I(2)/JACVI                        H0390280
       IAC2I(1,2)=IAC2I(1,4)/4/KBCVI                                      H0390290
       IHDVI = IHDVI - 2                                                  H0390300
       IGDVI = IGDVI - 5                                                  H0390310
       IEDVI = IEDVI - 5                                                  H0390320
       IAC2I(1,2) = IAC2I(1,2) + 1                                        H0390330
       WRITE (NUVI,392) IHDVI, IGDVI, IFDVI, IEDVI, IAC2I(1,2)            H0390340
392    FORMAT (//5(I10/))                                                 H0390350
       WRITE (NUVI, 393)                                                  H0390360
393    FORMAT  (//2X,19HTEST2 REAL DIVISION)                              H0390370
       ACVS=1.0                                                           H0390380
       BCVS=0.0                                                           H0390390
       CCVS=1.0E1                                                         H0390400
       DCVS=20.0E-1                                                       H0390410
       AC1S(1)=100.0E-2                                                   H0390420
       A2S(1,1) = -200.E-2                                                H0390430
       HHDVS= ACVS/ACVS                                                   H0390440
       GGDVS = CCVS/ACVS/(-ACVS)                                          H0390450
       FFDVS= BCVS/CCVS/DCVS/ACVS                                         H0390460
       EEDVS= CCVS/AC1S(1)/DCVS/(-1.0)/ACVS                               H0390470
       A2S(1,2) = A2S(1,1)/AC1S(1)/ACVS/(-2.0E0)                          H0390480
       HHDVS = HHDVS - 1.0                                                H0390490
       GGDVS = GGDVS + 10.0                                               H0390500
       EEDVS = EEDVS + 5.0                                                H0390510
       A2S(1,2) = A2S(1,2) - 1.                                           H0390520
       WRITE (NUVI,394) HHDVS , GGDVS, FFDVS, EEDVS, A2S(1,2)             H0390530
394    FORMAT (//5(F11.1/)//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/       H0390540
      12X,29HTHIS SEGMENT TO BE SUCCESSFUL)                               H0390550
C*****    END OF TEST SEGMENT 039                                         H0390560
C*****  WHEN EXECUTING ONLY SEGMENT 039, THE STOP AND END CARDS           H0390570
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS       H0390580
C*****  1  AND  2  REMOVED.                                               H0390590
C=     STOP                                                               H0390600
C=     END                                                                H0390610
C*******************************************************************************H0400010
C*****                                                                    H0400020
C*****                          ARFDV - (040)                             H0400030
C*****                                                                    H0400040
C*******************************************************************************H0400050
C*****  GENERAL PURPOSE                                          ASA REF  H0400060
C*****    TEST THAT EXPRESSIONS INVOLVING DIVISION OF DOUBLE      6.1     H0400070
C*****    PRECISION VALUES MAY BE FORMED                                  H0400080
C*****  GENERAL COMMENTS                                                  H0400090
C*****  * DP SUBTRACTION ASSUMED WORKING.                                 H0400100
C*****  * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A           H0400110
C*****    VARIETY OF COMBINATIONS.                                        H0400120
C*****                                                                    H0400130
C*****  S P E C I F I C A T I O N S  SEGMENT 040                          H0400140
C*****                                                                    H0011455
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C*****  WHEN EXECUTING ONLY SEGMENT 040, THE SPECIFICATION STATEMENTS   H0011460
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS         H0011465
C*****  1  AND  2  REMOVED.                                             H0011470
C*****                                                                  H0011475
C=     DOUBLE PRECISION ACVD,BCVD,CCVD,DCVD,EEDVD,FFDVD,GGDVD,HHDVD     H0011480
C=    1,AC1D(10),BC2D(7,4),CC3D(7,2,2)                                  H0011485
C*****                                                                  H0011490
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0400150
C*****                                                                  H0071445
C*****  WHEN EXECUTING ONLY SEGMENT 040, THE FOLLOWING STATEMENT        H0071450
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.        H0071455
C*****                                                                  H0071460
C=     NUVI = 6                                                         H0071465
C*****                                                                  H0071470
       WRITE (NUVI,400)                                                 H0400160
  400  FORMAT (1H1,1X,27HARFDV - (040) D.P. DIVISION//                  H0400170
      -16H  ASA REF. - 6.1//2X,7HRESULTS)                               H0400180
C*****    HEADER FOR SEGMENT 040 WRITTEN                                H0400190
       ACVD = 1.0D0                                                     H0400200
       BCVD = 20.0D-1                                                   H0400210
       CCVD = .1D2                                                      H0400220
       DCVD = -10.0                                                     H0400230
       AC1D(1)= 0.0                                                     H0400240
       CC3D(1,2,2) = -.004D3                                            H0400250
       CC3D(1,1,2) = .244140625D-3                                      H0400260
       HHDVD  = BCVD/ACVD                                               H0400270
       CC3D(3,1,2) = .125D0                                             H0400280
       GGDVD  = DCVD/DCVD/ACVD                                          H0400290
       FFDVD  = AC1D(1)/BCVD/ACVD/1.D0/1.D0                             H0400300
       EEDVD = DCVD/BCVD/(-5.0E0)/ACVD/ACVD                             H0400310
       BC2D(4,4) = CC3D(1,2,2)/BCVD/DCVD/.002D2                         H0400320
       BC2D(4,3) = CC3D(1,1,2) / CC3D(3,1,2)                            H0400330
       HHDVD = HHDVD - 2.0D0                                            H0400340
       GGDVD = GGDVD - 1.0D0                                            H0400350
       EEDVD = EEDVD - 1.0D0                                            H0400360
       BC2D(4,4) = BC2D(4,4) - 1.0D0                                    H0400370
       BC2D(4,3) = BC2D(4,3) - 195.3125D-5                              H0400380
       WRITE (NUVI,401) HHDVD,GGDVD,FFDVD,EEDVD,BC2D(4,4) , BC2D(4,3)   H0400390
401    FORMAT (//6(D22.10/)//35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/     H0400400
     1 31H  THIS SEGMENT TO BE SUCCESSFUL)                              H0400410
C*****    END OF TEST SEGMENT 040                                       H0400420
C*****  WHEN EXECUTING ONLY SEGMENT 040, THE STOP AND END CARDS         H0400430
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS     H0400440
C*****  1  AND  2  REMOVED.                                             H0400450
C=     STOP                                                             H0400460
C=     END                                                              H0400470
C*******************************************************************************H0410010
C*****                                                                  H0410020
C*****                          ARBEX - (041)                           H0410030
C*****                                                                  H0410040
C*******************************************************************************H0410050
C*****                                                                  H0410060
C*****  GENERAL PURPOSE                                        ASA REF  H0410070
C*****    TEST THAT EXPRESSIONS INVOLVING INTEGER AND REAL      6.1     H0410080
C*****    EXPONENTIATION MAY BE FORMED                                  H0410090
C*****  GENERAL COMMENTS                                                H0410100
C*****    THE FOLLOWING TESTS ARE MADE -                                H0410110
C*****    INTEGER BY INTEGER GIVING INTEGER                     6.1     H0410120
C*****    REAL (SP) BY INTEGER GIVING REAL (SP)                         H0410130
C*****    REAL (SP) BY REAL (SP) GIVING REAL (SP)                       H0410140
C*****  RESTRICTIONS OBSERVED                                           H0410150
C*****                                                                  H0410160
C*****  S P E C I F I C A T I O N S  SEGMENT 041                        H0410170
C*****                                                                  H0011495
C*****  WHEN EXECUTING ONLY SEGMENT 041, THE SPECIFICATION STATEMENTS   H0011500
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS         H0011505
C*****  1  AND  2  REMOVED.                                             H0011510
C*****                                                                  H0011515
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C=     DIMENSION A2S(2,2),IAC1I(5),IAC2I(2,7),AC1S(25)                  H0011520
C*****                                                                  H0011525
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0410180
C*****                                                                  H0071475
C*****  WHEN EXECUTING ONLY SEGMENT 041, THE FOLLOWING STATEMENT        H0071480
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.        H0071485
C*****                                                                  H0071490
C=     NUVI = 6                                                         H0071495
C*****                                                                  H0071500
       WRITE (NUVI,410)                                                 H0410190
410    FORMAT (1H1,1X,34HARBEX - (041) BASIC EXPONENTIATION//           H0410200
      -  2X,15HASA REFS. - 6.1//2X, 7HRESULTS)                          H0410210
C*****    HEADER FOR SEGMENT 041 WRITTEN                               H0410220
       WRITE (NUVI,411)                                                 H0410230
411    FORMAT   (//2X,18HINTEGER BY INTEGER)                            H0410240
       JACVI=1                                                          H0410250
       KBCVI=0                                                          H0410260
       LCCVI=2                                                          H0410270
       MDCVI=-1                                                         H0410280
       IAC1I(2) = 3                                                     H0410290
       IAC2I(1,4) = 3                                                   H0410300
       IHDVI = LCCVI**IAC1I(2)                                          H0410310
       IGDVI=KBCVI**JACVI                                               H0410320
       IFDVI=JACVI**KBCVI                                               H0410330
       IEDVI = MDCVI**IAC1I(2)                                          H0410340
       IDDVI=(LCCVI**LCCVI)**(JACVI**MDCVI)                             H0410350
       IAC2I(1,2) = (LCCVI**IAC2I(1,4))**JACVI                          H0410360
       IHDVI = IHDVI - 8                                                H0410370
       IFDVI = IFDVI - 1                                                H0410380
       IEDVI = IEDVI + 1                                                H0410390
       IDDVI = IDDVI- 4                                                 H0410400
       IAC2I(1,2) = IAC2I(1,2) - 8                                      H0410410
       WRITE (NUVI, 412) IHDVI, IGDVI, IFDVI, IEDVI, IAC2I(1,2)         H0410420
412    FORMAT (//6(I10/))                                               H0410430
       WRITE (NUVI, 413)                                                H0410440
413    FORMAT  (//2X,25HREAL BY INT, REAL BY REAL)                      H0410450
       ACVS=1.0                                                         H0410460
       BCVS=0.0                                                         H0410470
       CCVS=0.5E0                                                       H0410480
       DCVS = 20.0E-1                                                   H0410490
       AC1S(1)=1.21E0                                                   H0410500
       A2S(1,1) = 300.E-2                                               H0410510
       HHDVS=ACVS**JACVI                                                H0410520
       GGDVS=BCVS**JACVI                                                H0410530
       FFDVS=DCVS**IAC1I(2)                                             H0410540
       EEDVS=ACVS**ACVS                                                 H0410550
       DDDVS=AC1S(1)**CCVS                                              H0410560
       CCDVS=(DCVS**1)**(2.0**ACVS)                                     H0410570
       A2S(2,1) = (A2S(1,1)**DCVS)**BCVS                                H0410580
       HHDVS = HHDVS - 1.0                                              H0410590
       FFDVS = FFDVS - 8.0                                              H0410600
       EEDVS = EEDVS - 1.0                                              H0410610
       DDDVS = DDDVS - 1.1                                              H0410620
       CCDVS = CCDVS - 4.0                                              H0410630
       A2S(2,1) = A2S(2,1) - 1.0                                        H0410640
       WRITE (NUVI,414) HHDVS, GGDVS, FFDVS, EEDVS, DDDVS, CCDVS,A2S(2,1)H0410650
414    FORMAT (///7(F11.1/)//35H  ALL ABOVE ANSWERS SHOULD BE 0 FOR/    H0410660
      12X, 29HTHIS SEGMENT TO BE SUCCESSFUL)                            H0410670
C*****    END OF TEST SEGMENT 041                                      H0410680
C*****  WHEN EXECUTING ONLY SEGMENT 041, THE STOP AND END CARDS         H0410690
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS     H0410700
C*****  1  AND  2  REMOVED.                                             H0410710
C=     STOP                                                             H0410720
C=     END                                                              H0410730
C*************************************************************************H0420010
C*****                                                                  H0420020
C*****                          ARFEX - (042)                           H0420030
C*****                                                                  H0420040
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C*****************************************************************************H0420050
C*****  GENERAL PURPOSE                                              ASA REFH0420060
C*****     TEST EXPONENTIATION OF DOUBLE PRECISION ITEMS               6.1   H0420070
C*****     THE FOLLOWING TYPES OF DP EXPONENTIATION ARE TESTED -             H0420080
C*****       DP BY REAL GIVING DP                                            H0420090
C*****       REAL BY DP GIVING DP                                            H0420100
C*****       DP BY DP GIVING DP                                              H0420110
C*****  GENERAL COMMENTS                                                     H0420120
C*****  * DP ADDITION AND SUBTRACTION ASSUMED WORKING.                       H0420130
C*****  * VARIABLES, ARRAY ELEMENTS AND CONSTANTS ARE USED IN A              H0420140
C*****     VARIETY OF COMBINATIONS.                                          H0420150
C*****  RESTRICTION OBSERVED                                                 H0420160
C*****     NEGATIVE VALUED ITEMS ARE NEVER RAISED TO A REAL OR      6.4/12H0420170
C*****     DP EXPONENT                                                       H0420180
C*****                                                                       H0420190
C*****  S P E C I F I C A T I O N S  SEGMENT 042                             H0420200
C*****                                                                       H0011530
C*****  WHEN EXECUTING ONLY SEGMENT 042, THE SPECIFICATION STATEMENTS        H0011535
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS              H0011540
C*****  1  AND  2  REMOVED.                                                  H0011545
C*****                                                                       H0011550
C=     DOUBLE PRECISION ACVD,BCVD,CCVD,EEDVD,FFDVD,GGDVD,HHDVD               H0011555
C=     DOUBLE PRECISION AC1D(10),BC2D(7,4),CC3D(7,2,2)                       H0011560
C*****                                                                       H0011565
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.          H0420210
C*****                                                                       H0071505
C*****  WHEN EXECUTING ONLY SEGMENT 042, THE FOLLOWING STATEMENT             H0071510
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.             H0071515
C*****                                                                       H0071520
C=     NUVI = 6                                                              H0071525
C*****                                                                       H0071530
       WRITE (NUVI,420)                                                      H0420220
420    FORMAT (1H1,1X,28HARFEX - (042) EXPONENTIATION//                      H0420230
      -16H  ASA REF. - 6.1//2X,7HRESULTS)                                    H0420240
C*****    HEADER FOR SEGMENT 042 WRITTEN                                     H0420250
C*****    DEFINE VARIABLES AND ARRAY ELEMENTS                                H0420260
       ACVS=1.0                                                              H0420270
       BCVS=0.0                                                              H0420280
       CCVS=0.5                                                              H0420290
       DCVS=20.0E-1                                                          H0420300
       ACVD = 1.0D0                                                          H0420310
       BCVD = 80.0D-1                                                        H0420320
       CCVD = 0.0                                                            H0420330
       AC1D(1) = 1.0                                                         H0420340
       BC2D(2,4) =  3000.D-3                                                 H0420350
       HHDVD = ACVD**BCVS                                                    H0420360
       GGDVD = ACVS**ACVD                                                    H0420370
       FFDVD = AC1D(1)**BCVD                                                 H0420380
       EEDVD = (DCVS**ACVD)** (2.0D0**ACVS)                                  H0420390
       CC3D(5,1,2) = BC2D(2,4)**(DCVS**BCVS)                                 H0420400
       HHDVD = HHDVD - 1.0D0                                                 H0420410
       GGDVD = GGDVD - 1.0D0                                                 H0420420
       FFDVD = FFDVD - 1.0D0                                                 H0420430
       EEDVD = EEDVD - 4.0D0                                                 H0420440
       CC3D(5,1,2) = CC3D(5,1,2) - 3.0D0                                     H0420450
       WRITE (NUVI,421) HHDVD, GGDVD, FFDVD, EEDVD, CC3D(5,1,2)              H0420460
421    FORMAT (//5(D22.10/)//35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/         H0420470
     1 32H  THIS SEGMENT TO BE SUCCESSFUL./36H  VALUES WITH EXPONENTS LEH0420480
     2SS THAN   /31H  10**(-14) ARE CONSIDERED ZERO)                         H0420490
C*****    END OF TEST SEGMENT 042                                            H0420500
C*****  WHEN EXECUTING ONLY SEGMENT 042, THE STOP AND END CARDS              H0420510
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS          H0420520
C*****  1  AND  2  REMOVED.                                                  H0420530
C=     STOP                                                                  H0420540
C=     END                                                                   H0420550
C*****************************************************************************H0430010
C*****                                                                       H0430020
C*****                          ARBHI - (043)                                H0430030
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C*****                                                                  H0430040
C*****************************************************************************H0430050
C*****  GENERAL PURPOSE                                          ASA REF H0430060
C*****    TESTS THAT HIERARCHY OF OPERATORS AND PARENTHESES        6.1/07H0430070
C*****    ARE HANDLED CORRECTLY. OPERATORS SHOULD FOLLOW                  H0430080
C*****    THIS ORDER - **            (EXPONENTIATION)              6.4/41H0430090
C*****                  * ANO /    (MULTIPLICATION,OIVISION)              H0430100
C*****                  + ANO -    (AOOITION,SUBTRACTION)                 H0430110
C*****  GENERAL COMMENTS                                                H0430120
C*****  * ONLY INTEGER EXPRESSIONS ARE USED SINCE THIS TEST IS          H0430130
C*****    CONCENTRATING ON OPERATORS AND PARENTHESES                    H0430140
C*****  * AOOITION, SUBTRACTION, MULTIPLICATION, DIVISION,        6.4/49H0430150
C*****    EXPONENTIATION ASSUMEO TO FOLLOW LAWS OF                      H0430160
C*****    ASSOCIATION ANO COMMUTATION UNLESS PARENTHESES                H0430170
C*****    REGROUP EXPRESSIONS                                           H0430180
C*****  * INTEGER OIVISION MUST BE EVALUATEO FROM LEFT TO         6.4/56H0430190
C*****    RIGHT                                                         H0430200
C*****  RESTRICTIONS OBSERVEO                                           H0430210
C*****  * ALL ELEMENTS EVALUATEO ARE MATHEMATICALLY DEFINED       6.4/16H0430220
C*****  * NO NEGATIVE VALUES ARE RAISEO TO A REAL                 6.4/12H0430230
C*****    EXPONENT                                                      H0430240
C*****  * NO 2ERO VALUEO PRIMARY IS RAISEO TO A 2ERO              6.4/14H0430250
C*****    VALUEO EXPONENT                                               H0430260
C*****                                                                  H0430270
C*****  S P E C I F I C A T I O N S  SEGMENT 043                        H0430280
C*****                                                                  H0011570
C*****  WHEN EXECUTING ONLY SEGMENT 043, THE SPECIFICATION STATEMENTS   H0011575
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS         H0011580
C*****  1  ANO  2  REMOVEO.                                             H0011585
C*****                                                                  H0011590
C=     OIMENSION IAC1I(5),IAC2I(2,7)                                    H0011595
C*****                                                                  H0011600
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0430290
C*****                                                                  H0071535
C*****  WHEN EXECUTING ONLY SEGMENT 043, THE FOLLOWING STATEMENT        H0071540
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 ANO 2 REMOVED.        H0071545
C*****                                                                  H0071550
C=     NUVI = 6                                                         H0071555
C*****                                                                  H0071560
       WRITE   (NUVI,430)                                               H0430300
430    FORMAT (1H1,1X,36HARBHI - (043) HIERARCHY, PARENTHESES//2X,      H0430310
      1 23HASA REFS. - 6.1 AND 6.4//                                    H0430320
      2 2X, 7HRESULTS)                                                  H0430330
       JACVI = 1                                                        H0430340
       KBCVI = 2                                                        H0430350
       LCCVI = -5                                                       H0430360
       MDCVI = 0                                                        H0430370
       NECVI = 36                                                       H0430380
       IAC1I(2) = 10                                                    H0430390
C*****    TEST THAT AOOITION IS COMMUTATIVE (TEST 1)                    H0430400
       MRRVI = 1                                                        H0430410
       IHDVI = JACVI + KBCVI                                            H0430420
       IGDVI = KBCVI + JACVI                                            H0430430
       IFDVI = IHDVI - IGDVI                                            H0430440
       WRITE (NUVI,431) MRRVI, IFDVI                                    H0430450
C*****    TEST THAT MULTIPLICATION IS COMMUTATIVE (TEST 2)              H0430460
       MRRVI = 2                                                        H0430470
       IHOVI = JACVI * KBCVI                                            H0430480
       IGOVI = KBCVI * JACVI                                            H0430490
       IFOVI = IHOVI - IGDVI                                            H0430500
       WRITE (NUVI,431) MRRVI, IFDVI                                    H0430510
C*****    TEST THAT SUBTRACTION IS COMMUTATIVE (TEST 3)                 H0430520
       MRRVI = 3                                                        H0430530
       IHDVI = KBCVI - JACVI                                            H0430540
       IGOVI = -JACVI + KBCVI                                           H0430550
       IFDVI = IHDVI - IGDVI                                            H0430560
       WRITE (NUVI,431) MRRVI, IFDVI                                    H0430570
C*****    TEST THAT ADDITION IS ASSOCIATIVE (TEST 4)                    H0430580
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      MRRVI = 4                                                         H0430590
      IHDVI = (IAC1I(2) + JACVI) + KBCVI                                H0430600
      IGDVI = IAC1I(2) + (JACVI + KBCVI)                                H0430610
      IFDVI = IHDVI - IGDVI                                             H0430620
      WRITE (NUVI,431) MRRVI, IFDVI                                     H0430630
C*****    TEST THAT MULTIPLICATION IS ASSOCIATIVE (TEST 5)              H0430640
      MRRVI = 5                                                         H0430650
      IHDVI = (IAC1I(2) * LCCVI) * KBCVI                                H0430660
      IGDVI = IAC1I(2) * (LCCVI * KBCVI)                                H0430670
      IFDVI = IHDVI - IGDVI                                             H0430680
      WRITE (NUVI,431) MRRVI, IFDVI                                     H0430690
C*****    TEST THAT MULTIPLICATION IS DONE BEFORE ADDITION              H0430700
C*****    OR SUBTRACTION (TEST 6). ANSWER SHDULD BE ZERO                H0430710
      MRRVI = 6                                                         H0430720
      IHDVI = JACVI + KBCVI * LCCVI - 1 + IAC1I(2)                      H0430730
      WRITE (NUVI,431) MRRVI, IHDVI                                     H0430740
C*****    REGROUP TEST 6 EXPRESSION (SLIGHTLY CHANGED) WITH             H0430750
C*****    PARENTHESES.  ANSWERS SHDULD BE NDN-ZERO (TEST7).             H0430760
      MRRVI = 7                                                         H0430770
      IGDVI = (JACVI + KBCVI) * LCCVI + 9                               H0430780
      IFDVI = JACVI + KBCVI * (LCCVI + 9)                               H0430790
      IEDVI = (JACVI + KBCVI) * (LCCVI + 9)                             H0430800
      IAC1I(1) = IGDVI + 6                                              H0430810
      IAC1I(3) = IFDVI - 9                                              H0430820
      IAC1I(4) = IEDVI - 12                                             H0430830
      WRITE (NUVI,432) MRRVI, IAC1I(1), IAC1I(3), IAC1I(4)              H0430840
C*****    TEST THAT DIVISIDN IS DDNE BEFDRE ADDITIDN                    H0430850
C*****    AND SUBTRACTIDN (TEST 8). ANSWER SHOULD BE ZERO.              H0430860
      MRRVI = 8                                                         H0430870
      LCCVI = - 6                                                       H0430880
      IAC1I(2) = 12                                                     H0430890
      IHDVI = LCCVI + IAC1I(2) / KBCVI - LCCVI - 6                      H0430900
      WRITE (NUVI,431) MRRVI, IHDVI                                     H0430910
C*****    REGRDUP TEST 8 EXPRESSIDN WITH PARENTHESES (TEST 9). SECDND   H0430920
C*****    ANSWER SHDULD BE ZERD, DTHERS NDN-ZERD.                       H0430930
      MRRVI = 9                                                         H0430940
      IGDVI = (LCCVI + IAC1I(2)) / KBCVI - LCCVI - 6                    H0430950
      IFDVI = LCCVI + IAC1I(2) / (KBCVI - LCCVI - 6)                    H0430960
      IEDVI = (LCCVI + IAC1I(2)) / (KBCVI - LCCVI - 6)                  H0430970
      IAC1I(1) = IGDVI - 3                                              H0430980
      IAC1I(4) = IEDVI - 3                                              H0430990
      WRITE (NUVI,432) MRRVI, IAC1I(1), IAC1I(3), IAC1I(4)              H0431000
C*****    TEST THAT EXPDNENTIATION IS DONE BEFDRE                       H0431010
C*****    ANY OTHER OPERATIDN (TEST 10). ANSWERS SHOULD                 H0431020
C*****    BE ZERD.                                                      H0431030
      MRRVI = 10                                                        H0431040
      IHDVI = KBCVI + 3 ** 2 - 11                                       H0431050
      IGDVI = IAC1I(2) * KBCVI ** 3 - 96                                H0431060
      IFDVI = NECVI / LCCVI ** KBCVI - 1                                H0431070
      WRITE (NUVI,432) MRRVI, IHDVI, IGDVI, IFDVI                       H0431080
C*****    REGRDUP TEST 10 EXPRESSIDNS WITH PARENTHESES (TEST 11)        H0431090
C*****    ANSWERS SHOULD BE NON-ZERO                                    H0431100
      MRRVI = 11                                                        H0431110
      IHDVI = (KBCVI + 3) ** 2 - 11                                     H0431120
      IGDVI = (IAC1I(2) * KBCVI) ** 3 - 80                              H0431130
      IFDVI = (NECVI / LCCVI) ** KBCVI - 1                              H0431140
      IAC1I(1) = IHDVI - 14                                             H0431150
      IAC1I(3) = IGDVI - 13744                                          H0431160
      IAC1I(4) = IFDVI - 35                                             H0431170
      WRITE (NUVI,432) MRRVI, IAC1I(1), IAC1I(3), IAC1I(4)              H0431180
C*****    THE FOLLOWING STATEMENTS INCLUDE AN ADDITIDNAL TEST           H0431190
C*****    OF DPERATOR HIERARCHY. A VARIETY DF DPERATORS IS USED         H0431200
C*****    BOTH VARIABLES AND ARRAY ELEMENTS ARE USED.  ALL              H0431210
C*****    ANSWERS SHOULD BE ZERO (TEST 12).                             H0431220
      MRRVI = 12                                                        H0431230
      LCCVI = -5                                                        H0431240
      IAC1I(2) = 10                                                     H0431250
      IEDVI = JACVI+KBCVI*LCCVI-IAC1I(2)/2-IAC1I(2)/2/5+15              H0431260
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      IDDVI = KBCVI**3*4 + 162/(3**(KBCVI*2)) + MDCVI-34                H0431270
      IHDVI = KBCVI*(JACVI+KBCVI*(IAC1I(2)-KBCVI)) - 34                 H0431280
      IGDVI = IAC1I(2)/KBCVI+70/(LCCVI*(KBCVI**2+3))-3                  H0431290
      IFOVI = KBCVI*(KBCVI+IAC1I(2)*(KBCVI+3*(JACVI+KBCVI)))-224        H0431300
      IAC1I(1) = KBCVI*(KBCVI+KBCVI*(KBCVI+KBCVI*(KBCVI+KBCVI*          H0431310
     -(KBCVI+KBCVI)))) - 92                                             H0431320
      IAC2I(1,4) = IAC1I(2)+LCCVI+JACVI+KBCVI+KBCVI-JACVI-9             H0431330
      IAC2I(1,2) = IAC1I(2)/(LCCVI+JACVI+KBCVI)*(KBCVI**                H0431340
     1(KBCVI-JACVI))+10                                                 H0431350
      WRITE (NUVI,433) MRRVI, IEDVI, IDDVI, IHDVI, IGDVI, IFDVI,        H0431360
     1                 IAC1I(1),IAC2I(1,4),IAC2I(1,2)                   H0431370
C*****  EVALUATION MAY PROCEED ACCORDING TO ANY VALID FORMATION SEQUENCE H0431380
C*****  EVALUATION OF INTEGER TERM CONTAINING DIVISION                    H0431390
      MRRVI = 13                                                        H0431400
      NECVI = 7                                                         H0431410
      KBCVI = 2                                                         H0431420
      LCCVI = 4                                                         H0431430
      IGDVI = NECVI/KBCVI * LCCVI                                       H0431440
      IFOVI = LCCVI * NECVI / KBCVI                                     H0431450
      IAC1I(1) = IGOVI - 12                                             H0431460
      IAC1I(2) = IFDVI - 14                                             H0431470
      WRITE (NUVI,434) MRRVI,IAC1I(1), IAC1I(2)                         H0431480
C*****    FORMAT STATEMENTS FOR THIS SEGMENT                            H0431490
431   FORMAT ( /2X,4HTEST, I4, I6)                                      H0431500
432   FORMAT(/2X, 4HTEST, I4, I6/ I16/ I16)                             H0431510
433   FORMAT(/2X, 4HTEST,I4,I6/6(I16/),I16)                             H0431520
434   FORMAT(/2X,4HTEST,I4,I6/I16/2X,35H  THE ANSWERS ABOVE SHOULD BE 0 H0431530
     1FOR/31H  THIS SEGMENT TO BE SUCCESSFUL)                           H0431540
C*****    END OF TEST SEGMENT 043                                       H0431550
C*****  WHEN EXECUTING ONLY SEGMENT 043, THE STOP AND END CARDS         H0431560
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS     H0431570
C*****  1  AND  2  REMOVED.                                             H0431580
C=    STOP                                                              H0431590
C=    END                                                               H0431600
C*************************************************************************H0500010
C******                                                                 H0500020
C******                          SBB67 - (050)                          H0500030
C******                                                                 H0500040
C*************************************************************************H0500050
C******  GENERAL PURPOSE                                      ASA REF   H0500060
C******    TEST FORMATION OF SUBSCRIPTS FOR INTEGER           5.1.3.3H0500070
C******    AND SINGLE PRECISION ARRAYS  IN FORM V,K FORMS             H0500080
C*****                                                                  H0500090
C*****  S P E C I F I C A T I O N S  SEGMENT 050                        H0500100
C*****                                                                  H0011605
C*****  WHEN EXECUTING ONLY SEGMENT 050, THE SPECIFICATION STATEMENTS   H0011610
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS         H0011615
C*****  1  AND  2  REMOVED.                                            H0011620
C*****                                                                 H0011625
C=    DIMENSION A3S(3,3,3)                                             H0011630
C=    DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6)                 H0011635
C=    INTEGER MCA3I(2,3,3)                                             H0011640
C*****                                                                 H0011645
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0500110
C*****                                                                 H0071565
C*****  WHEN EXECUTING ONLY SEGMENT 050, THE FOLLOWING STATEMENT       H0071570
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.       H0071575
C*****                                                                 H0071580
C=    NUVI = 6                                                         H0071585
C*****                                                                 H0071590
      WRITE (NUVI,501)                                                 H0500120
501   FORMAT (1H1,1X,36HSBB67 - (050) SUBSCRIPTS FOR INTEGER/          H0500130
     -16X,21HAND REAL ARRAYS, V, K//2X,14HASA REF. 5.1.3//2X,          H0500140
     -7HRESULTS)                                                       H0500150
      IAC1I(5) = 3                                                     H0500160
      IAC2I(1,3)=4                                                     H0500170
      MCA3I(2,2,1) = -7                                                H0500180
      AC1S(20)=1.0                                                     H0500190
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      AC2S(4,1)=-2.1E1                                                  H0500200
      A3S(1,2,2) = -22.0                                                H0500210
      JACVI = IAC1I(5) + IAC2I(1,3) + MCA3I(2,2,1)                      H0500220
      HHCVS = AC1S(20) - AC2S( 4,1) + A3S(1,2,2)                        H0500230
      WRITE (NUVI, 502) JACVI, HHCVS                                    H0500240
502   FORMAT (// I9//F11.1)                                             H0500250
504    JACVI=1                                                          H0500260
       ACVS=1.0                                                         H0500270
       IAC1I(JACVI)=10                                                  H0500280
       IAC2I(JACVI,3)=12                                                H0500290
      IAC2I(2,JACVI)=-6                                                 H0500300
      MCA3I(JACVI,JACVI,3) = -1                                         H0500310
      MCA3I(2,JACVI,JACVI) = -1                                         H0500320
      MCA3I(JACVI,3,JACVI) = -2                                         H0500330
       AC1S(JACVI)=ACVS                                                 H0500340
       AC2S(JACVI,2)=3.0                                                H0500350
       AC2S(5,JACVI)=60.0E-1                                            H0500360
      A3S(JACVI,JACVI,3) = +1.0                                         H0500370
      A3S(2,JACVI,JACVI) = +1.0                                         H0500380
      A3S(JACVI,3,JACVI) = +0.0                                         H0500390
      NECVI = IAC1I(1) - IAC2I(1,3) - IAC2I(2,1) + MCA3I(1,1,3) +       H0500400
     1        MCA3I(2,1,1) + MCA3I(1,3,1)                               H0500410
      MDCVI = IAC1I(JACVI) - IAC2I(JACVI,3) - IAC2I(2,JACVI) +          H0500420
     1        MCA3I(JACVI,JACVI,3) + MCA3I(2,JACVI,JACVI) +             H0500430
     2        MCA3I(JACVI,3,JACVI)                                      H0500440
      HHCVS = AC1S(1) + AC2S(1,2) - AC2S(5,1) + A3S(1,1,3) + A3S(2,1,1) H0500450
     1      + A3S(1,3,1)                                                H0500460
      GGDVS = AC1S(JACVI) + AC2S(JACVI,2) - AC2S(5,JACVI) +             H0500470
     1        A3S(JACVI,JACVI,3) + A3S(2,JACVI,JACVI) +                 H0500480
     2        A3S(JACVI,3,JACVI)                                        H0500490
      WRITE (NUVI,508) NECVI, MDCVI, HHCVS, GGDVS                       H0500500
508   FORMAT (// 2(I9/) / 2(F11.1/) / 35H  THE ANSWERS ABOVE SHOULD BE 0H0500510
     1 FOR/31H  THIS SEGMENT TO BE SUCCESSFUL)                          H0500520
C*****    END OF TEST SEGMENT 050                                       H0500530
C*****  WHEN EXECUTING ONLY SEGMENT 050, THE STOP AND END CARDS         H0500540
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS     H0500550
C*****  1  AND  2  REMOVED.                                             H0500560
C=    STOP                                                              H0500570
C=    END                                                               H0500580
C*****************************************************************************H0510010
C******                                                                 H0510020
C******                          SBB45 - (051)                          H0510030
C******                                                                 H0510040
C*****************************************************************************H0510050
C******  GENERAL PURPOSE                                        ASA REFH0510060
C******    TEST FORMATION OF SUBSCRIPTS FOR INTEGER             5.1.3.3H0510070
C******    AND SINGLE PRECISION ARRAYS IN FORM V+K AND V-K              H0510080
C*****                                                                  H0510090
C*****  S P E C I F I C A T I O N S  SEGMENT 051                        H0510100
C*****                                                                  H0011650
C*****  WHEN EXECUTING ONLY SEGMENT 051, THE SPECIFICATION STATEMENTS   H0011655
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS         H0011660
C*****  1  AND  2  REMOVED.                                            H0011665
C*****                                                                  H0011670
C=    DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6),A3S(3,3,3)       H0011675
C=    INTEGER MCA3I(2,3,3)                                              H0011680
C*****                                                                  H0011685
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0510110
C*****                                                                  H0071595
C*****  WHEN EXECUTING ONLY SEGMENT 051, THE FOLLOWING STATEMENT        H0071600
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.        H0071605
C*****                                                                  H0071610
C=    NUVI = 6                                                          H0071615
C*****                                                                  H0071620
       WRITE (NUVI,511)                                                 H0510120
511   FORMAT (1H1,1X,36HSBB45 - (051) SUBSCRIPTS FOR INTEGER/           H0510130
     -16X,24HAND REAL ARRAYS,V+K, V-K//2X,16HASA REF. 5.1.3.3//2X,      H0510140
     -7HRESULTS)                                                        H0510150
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      JACVI=4                                                           H0510160
      IAC1I(JACVI+1)=1                                                  H0510170
      IAC1I(JACVI-1)=2                                                  H0510180
     IAC2I(JACVI-2,1)=3                                                 H0510190
      IAC2I(JACVI-2,2)=4                                                H0510200
      IAC2I(2,JACVI+  3 )=5                                             H0510210
      IAC2I(1,JACVI-0)=-3                                               H0510220
      AC1S(JACVI+1)=1.0                                                 H0510230
     AC1S(JACVI-1)=2.0                                                  H0510240
      AC2S(JACVI+0,1)=3.0                                               H0510250
      AC2S(JACVI-2,2)=4.0                                               H0510260
     AC2S(2,JACVI+  2 )=5.0                                             H0510270
      AC2S(1,JACVI-0) = -3.0E0                                          H0510280
     NECVI=IAC1I(5)+IAC1I(3)+IAC2I(2,1)+IAC2I(2,2)                      H0510290
    -+IAC2I(2,7)+IAC2I(1,4)-12                                          H0510300
      KBCVI = IAC1I(JACVI+1) + IAC1I(JACVI-1) + IAC2I(JACVI-2,1) +      H0510310
    1         IAC2I(JACVI-2,2) + IAC2I(1,JACVI-0) + IAC2I(2,JACVI+3) -12H0510320
      HHCVS = AC1S(5) + AC1S(3) + AC2S(4,1) + AC2S(2,2) + AC2S(2,6) +   H0510330
    1         AC2S(1,4) - 12.0                                          H0510340
      GGDVS = AC1S(JACVI+1) + AC1S(JACVI-1) + AC2S(JACVI+0,1) +         H0510350
    1         AC2S(JACVI-2,2) + AC2S(2,JACVI+2) + AC2S(1,JACVI-0) - 12.0H0510360
      JACVI = 2                                                         H0510370
      MCA3I(JACVI,JACVI+1,1)  =  12                                     H0510380
      MCA3I(1,JACVI+1,3) = -4                                           H0510390
      MCA3I(1,2,JACVI+0) = +2                                           H0510400
      MCA3I(JACVI-1,1,JACVI-1) = -6                                     H0510410
      MCA3I(JACVI,JACVI-0,2) = 15                                       H0510420
      MCA3I(2,JACVI-1,JACVI-1) = -11                                    H0510430
      MCA3I(JACVI-0,JACVI+1,JACVI+0) = -8                               H0510440
      MCA3I(JACVI,JACVI+1,JACVI+1) = MCA3I(JACVI,JACVI+1,1) +           H0510450
    1         MCA3I(1,JACVI+1,3) + MCA3I(1,2,JACVI+0) +                 H0510460
    2         MCA3I(JACVI-1,1,JACVI-1) + MCA3I(JACVI,JACVI-0,2) +       H0510470
    3         MCA3I(2,JACVI-1,JACVI-1) + MCA3I(JACVI-0,JACVI+1,JACVI+0) H0510480
      A3S(JACVI+1,1,1) = 12.0                                           H0510490
      A3S(1,JACVI+1,3) = -4.0                                           H0510500
      A3S(1,2,JACVI+0) = +2.0                                           H0510510
      A3S(JACVI-1,1,JACVI-1) = -6.0                                     H0510520
      A3S(JACVI+1,JACVI-0,2) = 15.0                                     H0510530
      A3S(2,JACVI-1,JACVI-1) = -11.0                                    H0510540
      A3S(JACVI-0,JACVI+1,JACVI+0) = -8.0                               H0510550
      A3S(JACVI+1,JACVI+1,JACVI+1) = A3S(JACVI+1,1,1) +                 H0510560
    1         A3S(1,JACVI+1,3) + A3S(1,2,JACVI+0) +                     H0510570
    2         A3S(JACVI-1,1,JACVI-1) + A3S(JACVI+1,JACVI-0,2) +         H0510580
    3         A3S(2,JACVI-1,JACVI-1) + A3S(JACVI-0,JACVI+1,JACVI+0)     H0510590
      WRITE (NUVI,515) NECVI,KBCVI,MCA3I(2,3,3),HHCVS,GGDVS,A3S(3,3,3)  H0510600
515   FORMAT (//3(I9/)/3(F11.1/)/35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/H0510610
    1 31H  THIS SEGMENT TO BE SUCCESSFUL)                               H0510620
C*****    END OF TEST SEGMENT 051                                       H0510630
C*****  WHEN EXECUTING ONLY SEGMENT 051, THE STOP AND END CARDS         H0510640
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS     H0510650
C*****  1  AND  2  REMOVED.                                             H0510660
C=    STOP                                                              H0510670
C=    END                                                               H0510680
C*****************************************************************************H0520010
C*****                                                                   H0520020
C*****                          SBB13 - (052)                            H0520030
C*****                                                                   H0520040
C*****************************************************************************H0520050
C*****  GENERAL PURPOSE                                        ASA REFSH0520060
C*****    TEST FORMATION OF SUBSCRIPTS FOR INTEGER               5.1.3.3H0520070
C*****    AND SINGLE PRECISION ARRAYS                                    H0520080
C*****    FORM C*V, C*V-K, C*V+K                                         H0520090
C*****                                                                   H0520100
C*****  S P E C I F I C A T I O N S  SEGMENT 052                         H0520110
C*****                                                                   H0011690
C*****  WHEN EXECUTING ONLY SEGMENT 052, THE SPECIFICATION STATEMENTS    H0011695
C*****  WHICH APPEAR AS COMMENTS, MUST HAVE THE  C=  IN COLUMNS          H0011700
C*****  1  AND  2  REMOVED.                                             H0011705
```

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C*****                                                                  H0011710
C=    DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),A3S(3,3,3),AC2S(5,6)       H0011715
C=    INTEGER MCA3I(2,3,3)                                              H0011720
C*****                                                                  H0011725
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0520120
C*****                                                                  H0071625
C*****  WHEN EXECUTING ONLY SEGMENT 052, THE FOLLOWING STATEMENT        H0071630
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.        H0071635
C*****                                                                  H0071640
C=    NUVI = 6                                                          H0071645
C*****                                                                  H0071650
      WRITE (NUVI,520)                                                  H0520130
520   FORMAT (1H1,1X,36HSBB13 - (052) SUBSCRIPTS INTEGER AND/           H0520140
     -16X,23HREAL, C*V, C*V-K, C*V+K//2X,16HASA REF. 5.1.3.3//2X,       H0520150
     -7HRESULTS)                                                        H0520160
      JACVI=2                                                           H0520170
      KACVI= 1                                                          H0520180
      LCCVI = -2                                                        H0520190
      IAC1I(2*JACVI)=1                                                  H0520200
      IAC2I(1*JACVI,1)=2                                                H0520210
      IAC2I(1,3*KACVI)=3                                                H0520220
      AC1S(2*JACVI)=1.0                                                 H0520230
      AC2S(1*JACVI,1)=2.0                                               H0520240
      AC2S(3, 3*KACVI)=30.E-1                                           H0520250
      MDCVI = IAC1I(2*JACVI) + IAC2I(1*JACVI,1) + IAC2I(1,3*KACVI) - 6  H0520260
      NECVI=IAC1I(4) +IAC2I(2,1) +IAC2I(1,3) - 6                        H0520270
      GGDVS = AC1S(2*JACVI) + AC2S(1*JACVI,1) + AC2S(3,3*KACVI) - 6.0   H0520280
      HHCVS = AC1S(4) + AC2S(2,1) + AC2S(3,3) - 6.0                     H0520290
      WRITE (NUVI,524) MDCVI, NECVI, GGDVS, HHCVS                       H0520300
524   FORMAT  (//2(I9/)/2(F11.1/))                                      H0520310
      IAC1I(2*JACVI+1) = -6                                             H0520320
      IAC1I(1*JACVI-1)=-4                                               H0520330
      IAC2I(1*JACVI-1,2)=3                                              H0520340
      IAC2I(2*JACVI-3,1)=4                                              H0520350
      IAC2I(2,1*JACVI+4)=2                                              H0520360
      IAC2I(1,3*JACVI-2)=1                                              H0520370
      AC1S(2*LCCVI+9) = -6.0                                            H0520380
      AC1S(1*LCCVI+3) = -4.0                                            H0520390
      AC2S(1*LCCVI+3,2) = 3.0                                           H0520400
      AC2S(2*JACVI+0,3)=4.0                                             H0520410
      AC2S(3,1*JACVI+3)=2.0                                             H0520420
      AC2S(3,3*JACVI-2)=1.0                                             H0520430
      MDCVI = IAC1I(2*JACVI+1) + IAC1I(1*JACVI-1) + IAC2I(1*JACVI-1,2) +H0520440
     1        IAC2I(1*KACVI+0,1) + IAC2I(2,2*JACVI+2) +                 H0520450
     2        IAC2I(1,3*JACVI-2)                                        H0520460
      NECVI = IAC1I(5) + IAC1I(1) + IAC2I(1,2)                          H0520470
     -+ IAC2I(1,1) + IAC2I(2,6) + IAC2I(1,4)                            H0520480
      GGDVS = AC1S(2*JACVI+1) + AC1S(1*JACVI-1) + AC2S(1*JACVI-1,2) +   H0520490
     1        AC2S(2*JACVI+0,3) + AC2S(3,1*JACVI+3) + AC2S(3,3*JACVI-2) H0520500
      HHCVS = AC1S(5) + AC1S(1) + AC2S(1,2)                             H0520510
     -+ AC2S(4,3) + AC2S(3,5) + AC2S(3,4)                               H0520520
      WRITE (NUVI,524) MDCVI, NECVI, GGDVS, HHCVS                       H0520530
      MCA3I(2*KACVI,1,1) = -1                                           H0520540
      MCA3I(2,2*KACVI,2) = -2                                           H0520550
      MCA3I(1,1,1*KACVI) = -3                                           H0520560
      MCA3I(1*KACVI+1,2,3) = 1                                          H0520570
      MCA3I(2,1*KACVI+2,2) = 2                                          H0520580
      MCA3I(1,2,3*KACVI+0) = 3                                          H0520590
      MCA3I(4*KACVI-2,1,3) = 40                                         H0520600
      MCA3I(1,6*KACVI-3,2) = 5                                          H0520610
      MCA3I(2,3,10*KACVI-9) = -40                                       H0520620
      MCA3I(2*KACVI,5*KACVI-4,2*KACVI+0)= -5                            H0520630
      MCA3I(1*KACVI-0,3,2*KACVI+1) = MCA3I(2*KACVI,1,1) +               H0520640
     1    MCA3I(2,2*KACVI,2) + MCA3I(1,1,1*KACVI) + MCA3I(1*KACVI+1,2,3)H0520650
     2  + MCA3I(2,1*KACVI+2,2) + MCA3I(1,2,3*KACVI+0)                   H0520660
     3  + MCA3I(4*KACVI-2,1,3) + MCA3I(1,6*KACVI-3,2)                   H0520670
     4  + MCA3I(2,3,10*KACVI-9) + MCA3I(2*KACVI,5*KACVI-4,2*KACVI+0)    H0520680
      A3S(3*KACVI,1,1) = -1.0                                           H0520690
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      A3S(2,2*KACVI,2) = -2.0                                                  H0520700
      A3S(1,1,1*KACVI) = -3.0                                                  H0520710
      A3S(2*KACVI+1,2,3) = 1.0                                                 H0520720
      A3S(3,1*KACVI+2,2) = 2.0                                                 H0520730
      A3S(1,2,3*KACVI+0) = 3.0                                                 H0520740
      A3S(4*KACVI-2,1,3) = 40.0                                                H0520750
      A3S(1,6*KACVI-3,2) = 5.0                                                 H0520760
      A3S(2,3,10*KACVI-8) = -40.0                                              H0520770
      A3S(3*KACVI,5*KACVI-4,2*KACVI+0) = -5.0                                  H0520780
      A3S(1*KACVI-0,3,2*KACVI+1) = A3S(3*KACVI,1,1) + A3S(2,2*KACVI,2) +H0520790
     1    A3S(1,1,1*KACVI) + A3S(2*KACVI+1,2,3) + A3S(3,1*KACVI+2,2) +  H0520800
     2    A3S(1,2,3*KACVI+0) + A3S(4*KACVI-2,1,3) + A3S(1,6*KACVI-3,2) +H0520810
     3    A3S(2,3,10*KACVI-8) + A3S(3*KACVI,5*KACVI-4,2*KACVI+0)         H0520820
      WRITE (NUVI,525) MCA3I(1,3,3), A3S(1,3,3)                                H0520830
525   FORMAT (///I9 // F11.1 )                                                 H0520840
      WRITE (NUVI,527)                                                         H0520850
527   FORMAT (// 35H  THE ANSWERS ABDVE SHOULD BE 0 FOR/                       H0520860
     1  31H  THIS SEGMENT TD BE SUCCESSFUL)                                   H0520870
C*****    END DF TEST SEGMENT 052                                             H0520880
C*****  WHEN EXECUTING DNLY SEGMENT 052, THE STDP AND END CARDS               H0520890
C*****  WHICH APPEAR AS CDMMENT CARDS MUST HAVE THE  C=  IN COLUMNS           H0520900
C*****  1  AND  2  REMDVED.                                                   H0520910
C=    STOP                                                                     H0520920
C=    END                                                                      H0520930
C*************************************************************************** H0530010
C*****                                                                        H0530020
C*****                        SBF17 - (053)                                   H0530030
C*****                                                                        H0530040
C*************************************************************************** H0530050
C*****                                                                        H0530060
C*****    GENERAL PURPDSE                                        ASA REF      H0530070
C*****      TEST FDRMATIDN OF SUBSCRIPTS FDR DDUBLE PRECISIDN    5.1.3.3      H0530080
C*****      ARRAYS                                                            H0530090
C*****      FDRMS V, K, C*V,      C*V-K, C*V+K, V+K, V-K                      H0530100
C*****                                                                        H0530110
C*****  S P E C I F I C A T I O N S  SEGMENT 053                              H0530120
C*****                                                                        H0011730
C*****  WHEN EXECUTING DNLY SEGMENT 053, THE SPECIFICATION STATEMENTS         H0011735
C*****  WHICH APPEAR AS CDMMENTS, MUST HAVE THE  C=  IN COLUMNS               H0011740
C*****  1  AND  2  REMOVED.                                                   H0011745
C*****                                                                        H0011750
C=    DOUBLE PRECISIDN AC1D(10),BC2D(7,4),CC3D(7,2,2),EP1D(43),               H0011755
C=   1                  VTAVD, WTAVD, AADVD                                  H0011760
C*****                                                                        H0011765
C*****  D U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.           H0530130
C*****                                                                        H0071655
C*****  WHEN EXECUTING ONLY SEGMENT 053, THE FOLLOWING STATEMENT              H0071660
C*****  NUVI = 6  MUST HAVE THE  C=  IN COLUMNS 1 AND 2 REMOVED.              H0071665
C*****                                                                        H0071670
C=    NUVI = 6                                                                 H0071675
C*****                                                                        H0071680
      WRITE (NUVI,530)                                                         H0530140
530   FORMAT (1H1,1X,33HSBF17 - (053) SUBSCRIPTS FOR D.P./                     H0530150
     -16X,17HARRAYS, ALL FORMS//2X,18HASA REF. - 5.1.3.3//2X,7HRESULTS)       H0530160
      NACVI = 10                                                               H0530170
      JACVI=1                                                                  H0530180
      KACVI=+2                                                                 H0530190
      LCCVI = -1                                                               H0530200
      EP1D(10)=1.00                                                            H0530210
      BC2D(6,3)=4.0D0                                                          H0530220
      CC3D(4,1,1)=-60.0D-1                                                     H0530230
      AC1D(JACVI)=30.0D-1                                                      H0530240
      BC2D(JACVI,3)=1.0D0                                                      H0530250
      CC3D(JACVI,1,1)=2.0D0                                                    H0530260
      BC2D(3,JACVI)=5.0D0                                                      H0530270
      CC3D(2,JACVI,1)=-2.0D0                                                   H0530280
      CC3D(3,2,JACVI)=.4D1                                                     H0530290
      VTAVD = EP1D(10) + BC2D(6,3) + CC3D(4,1,1) + AC1D(1)                     H0530300
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     -+BC2D(1,3) + CC3D(1,1,1) + BC2D(3,1) + CC3D(2,1,1)                H0530310
     -+CC3D(3,2,1) - 12.0D0                                             H0530320
      AADVD = EP1D(10) + AC1D(JACVI) + BC2D(JACVI,3) + BC2D(6,3) +      H0530330
     1        CC3D(4,1,1) + CC3D(JACVI,1,1) + BC2D(3,JACVI) +           H0530340
     2        CC3D(2,JACVI,1) + CC3D(3,2,JACVI) - 12.0D0                H0530350
      AC1D(3*JACVI)=-0.6D+1                                             H0530360
      AC1D(3*JACVI-2)=70.0D-1                                           H0530370
      AC1D(5*JACVI+3) = 1.0D0                                           H0530380
      AC1D (JACVI+3) = 1.0D0                                            H0530390
      AC1D (NACVI-3) = -1.0D0                                           H0530400
      BC2D(6*JACVI,2*KACVI-1) =2.0D0                                    H0530410
      BC2D(8*JACVI-2,1*LCCVI+5) = 10.0D0                                H0530420
      CC3D (3*JACVI,2,4*KACVI-6) = -8.0D0                               H0530430
      CC3D(10*JACVI-3,1,1*LCCVI+3) = -6.0D0                             H0530440
      WTAVD = AC1D(3) + AC1D(1) + AC1D(8) + BC2D(6,3) +                 H0530450
     -BC2D(6,4) + CC3D(3,2,2) + CC3D(7,1,2) + AC1D(4) + AC1D(7)         H0530460
      CC3D(2*KACVI+1,NACVI-8,2*JACVI) = AC1D(3*JACVI) +                 H0530470
     1        AC1D(3*JACVI-2) + AC1D(5*JACVI+3) + AC1D(JACVI+3) +       H0530480
     2        AC1D(NACVI-3) + BC2D(6*JACVI,2*KACVI-1) +                 H0530490
     3        BC2D(8*JACVI-2,1*JACVI+3) + CC3D(3*JACVI,2,4*KACVI-6 ) +  H0530500
     4        CC3D(10*JACVI-3,1,1*JACVI+1)                              H0530510
      WRITE (NUVI,531) VTAVD, WTAVD, AADVD, CC3D(5,2,2)                 H0530520
531   FORMAT (//4(D18.5/)// 35H  THE ANSWERS ABOVE SHOULD BE 0 FOR/      H0530530
     1 31H  THIS SEGMENT TO BE SUCCESSFUL)                              H0530540
C*****    END OF TEST SEGMENT 053                                       H0530550
C*****  WHEN EXECUTING ONLY SEGMENT 053, THE STOP AND END CARDS         H0530560
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=  IN COLUMNS     H0530570
C*****  1  AND  2  REMOVED.                                             H0530580
C=    STOP                                                            H0530590
C=    END                                                             H0530600
      STOP                                                            H9999995
      END                                                             H9999999
  SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.   ID 2
  OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT    ID 4
  DATE, INSTALLATION NAME
       DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT    ID 6
C*****    PART5    ************************************************H0001800
C*****                                                              H0001805
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS              H0001810
C*****                                                              H0001815
C*****    PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3  H0001820
C*****                                                              H0001825
C*****    JUNE 1974                                                 H0001830
C*****                                                              H0001835
C*****    PART 5  OF 14 PARTS                                       H0001840
C*****                                                              H0001845
C*****   SEGMENTS INCLUDED                                          H0001850
C*****                                                              H0001855
C*****     SIMIF - 054 ARITHMETIC IF, LOGICAL IF FOLLOWED BY GO TO  H0001860
C*****                                                              H0001865
C*****     IFABS - 055 ABS,IABS(ABSOLUTE VALUE)                     H0001870
C*****                                                              H0001875
C*****     IFFLT - 056 FLOAT(CONVERT FROM INTEGER TO REAL)          H0001880
C*****                                                              H0001885
C*****     IFFIX - 057 IFIX(CONVERT FROM REAL TO INTEGER)           H0001890
C*****                                                              H0001895
C*****     IFSGN - 058 SIGN,ISIGN(TRANSFER OF SIGN)                 H0001900
C*****                                                              H0001905
C*****     IFDAB - 059 DABS(ABSOLUTE VALUE)                         H0001910
C*****                                                              H0001915
C*****     IFTRN - 060 AINT,INT,IDINT(TRUNCATION)                   H0001920
C*****                                                              H0001925
C*****     IFMOD - 061 AMOD,MOD(REMAINDERING)                       H0001930
C*****                                                              H0001935
C*****     IFMAX - 062 AMAX0,AMAX1,MAX0,MAX1,DMAX1(CHOOSE LARGEST VALUE)H0001940
C*****                                                              H0001945
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C*****      IFMIN - 063 AMIN0,AMIN1,MIN0,MIN1,DMIN1(CHOOSE SMALLEST VALUEH0001950
C*****                                                                  H0001955
C*****      IFDSG - 064 DSIGN(TRANSFER OF SIGN)                         H0001960
C*****                                                                  H0011800
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN SEGMENTS  H0011805
C*****  054, 055, 056, 057, 058, 059, 060, 061, 062, 063, 064           H0011810
C*****  ARE RUN AS ONE MAIN PROGRAM.                                    H0011815
C*****                                                                  H0011820
      DOUBLE PRECISION DPAVD, DPBVD, DPCVD, DPEVD, DPFVD, DPGVD, DPDVD  H0011825
     1                 ,MCAVD, MCBVD, MCCVD, MCDVD, MCEVD, MCFVD        H0011830
      LOGICAL LVB, L1B(10), LNVB                                        H0011835
C*****                                                                  H0011840
C*****  END OF SPECIFICATIONS FOR SEGMENTS                              H0011845
C*****  054,055, 056, 057, 058, 059, 060, 061, 062, 063, 064            H0011850
C*****                                                                  H0011855
C*************************************************************************H0540010
C*****                                                                  H0540020
C*****                          SIMIF - (054)                           H0540030
C*****                                                                  H0540040
C*************************************************************************H0540050
C*****  GENERAL PURPOSE                                        ASA REFSH0540060
C*****    TO TEST ARITHMETIC IF STATEMENT                      7.1.2.2 H0540070
C*****    AND LOGICAL IF FOLLOWED BY GO TO                     7.1.2.3 H0540080
C*****    SO THAT THESE STATEMENTS MAY BE USED                 4.2     H0540090
C*****    IN SUBSEQUENT TEST SEGMENTS.                                  H0540100
C*****                                                                  H0540110
C*****    ARITHMETIC EXPRESSIONS ARE -                                  H0540120
C*****    INTEGER VARIABLE                                              H0540130
C*****    INTEGER VARIABLE + OR - A CONSTANT                            H0540140
C*****    LOGICAL EXPRESSIONS ARE -                                     H0540150
C*****    LOGICAL VARIABLE                                              H0540160
C*****    .NOT. LOGICAL VARIABLE                                        H0540170
C*****                                                                  H0540180
C*****  S P E C I F I C A T I O N S  SEGMENT 054                        H0540190
C*****                                                                  H0011860
C*****  WHEN EXECUTING ONLY SEGMENT 054, REMOVE THE PRECEDING           H0011865
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS WHICH APPEAR      H0011870
C*****  AS COMMENTS MUST HAVE THE  C=  IN COLUMNS  1 AND 2 REMOVED.     H0011875
C*****                                                                  H0011880
C=    LOGICAL LVB, L1B(10), LNVB                                        H0011885
C*****                                                                  H0011890
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS.        H0540200
      IRVI = 5                                                          H0071800
      NUVI = 6                                                          H0071805
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0071810
      WRITE(NUVI,0071)                                                  H0071815
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0071820
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                  H0071825
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0071830
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0071835
     5 23H  VERSION 3      PART 5 ///)                                 H0071840
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER       H0071845
C       PREPARED BY USER                                                H0071850
C       READ, NO LIST                                                   H0071855
C       PREPARED BY USER                                                H0071860
C       READ, NO LIST                                                   H0071865
C       PREPARED BY USER                                                H0071870
C       READ, NO LIST                                                   H0071875
      READ(IRVI,0070)                                                   H0071880
      READ(IRVI,0072)                                                   H0071885
      READ(IRVI,0073)                                                   H0071890
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)             H0071895
0072  FORMAT(40H   TEST PROGRAMS                         /)             H0071900
0073  FORMAT(40H   FORTRAN COMPILER                      /)             H0071905
      WRITE(NUVI,0070)                                                  H0071910
      WRITE(NUVI,0072)                                                  H0071915
      WRITE(NUVI,0073)                                                  H0071920
      WRITE(NUVI,7540)                                                  H0540210
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      IVI = -8                                                          H0540220
      JVI = 0                                                           H0540230
      KVI = 2                                                           H0540240
      MVI = -4                                                          H0540250
      LVB = .TRUE.                                                      H0540260
      LNVB = .FALSE.                                                    H0540270
C*****  LOGICAL ARRAY L1B SHOULD CONTAIN ALL .TRUE. IF TEST IS CORRECT. H0540280
      NVI = 1                                                           H0540290
      IF (IVI) 541, 542, 542                                            H0540300
  544 IF (JVI) 542, 541, 542                                            H0540310
  545 IF (KVI) 542,542, 541                                             H0540320
C*****  ZERO IS NEITHER POSITIVE NOR NEGATIVE                          H0540330
  546 NAVI = IVI * JVI                                                  H0540340
      IF (NAVI) 542, 541, 542                                           H0540350
  547 NAVI = JVI * MVI                                                  H0540360
      IF (NAVI) 542, 541, 542                                           H0540370
  548 NAVI = JVI / MVI                                                  H0540380
      IF (NAVI) 542, 541, 542                                           H0540390
  549 IF (MVI + 4) 542, 541, 542                                        H0540400
 7543 IF (KVI - 2) 542, 541, 542                                        H0540410
C*****  LOGICAL IF FOLLOWED BY GO TO                                   H0540420
 7544 IF (LVB) GO TO 541                                                H0540430
      GO TO 542                                                         H0540440
 7545 IF (.NOT.LNVB) GO TO 541                                          H0540450
 542  L1B(NVI) = .FALSE.                                                H0540460
      GO TO 543                                                         H0540470
  541 L1B(NVI) = .TRUE.                                                 H0540480
  543 NVI = NVI + 1                                                     H0540490
      GO TO (544,544,545,546,547,548,549,7543,7544,7545,7546), NVI      H0540500
 7546 WRITE (NUVI,7541) L1B                                             H0540510
      WRITE (NUVI,7542)                                                 H0540520
 7540 FORMAT (2H1 ,30HSIMIF - (054) SIMPLE ARITH. IF/19X,14HAND LOGICAL H0540530
     -IF//20H  ASA REF. - 7.1.2.2/ 13X, 7H7.1.2.3 //9H  RESULTS)        H0540540
7541  FORMAT (/L4)                                                      H0540550
 7542 FORMAT  (/36H  THE TEN ANSWERS ABOVE MUST BE TRUE)                H0540560
C*****  END OF TEST SEGMENT 054                                        H0540570
C*****  WHEN EXECUTING ONLY SEGMENT 054, THE STOP AND END CARDS        H0540580
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H0540590
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0540600
C=    STOP                                                            H0540610
C=    END                                                             H0540620
C*******************************************************************H0550010
C*****                                                                H0550020
C*****                        IFABS - (055)                           H0550030
C*****                                                                H0550040
C*******************************************************************H0550050
C*****  GENERAL PURPOSE                                    ASA REF   H0550060
C*****    TEST INTRINSIC FUNCTION ABS,IABS (ABSOLUTE VALUE)   8.2     H0550070
C*****                                                                H0550080
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0550090
C*****                                                                H0071925
C*****  WHEN EXECUTING ONLY SEGMENT 055, THE FOLLOWING STATEMENT       H0071930
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0071935
C*****                                                                H0071940
C=    NUVI = 6                                                        H0071945
C*****                                                                H0071950
      WRITE(NUVI,0550)                                                H0550100
0550  FORMAT(37H1 IFABS - (055) INTRINSIC FUNCTIONS--/10X,26HABS, IABS (H0550110
     1ABSOLUTE VALUE)//17H  ASA REFS. - 8.2//9H  RESULTS)             H0550120
C*****    HEADER FOR SEGMENT 055 WRITTEN                              H0550130
C*****    SINGLE PRECISION REAL ARGUMENT                              H0550140
      MCGVI = 1                                                       H0550150
      CMAVS = 1.000789                                                H0550160
      CMBVS = -0.2E2                                                  H0550170
      CMCVS = -2.0                                                    H0550180
      CMDVS =  2.0                                                    H0550190
      CMFVS = -4.0                                                    H0550200
      CMEVS = ABS(CMAVS)                                              H0550210
```

```
      CMEVS = CMEVS - 1.000789                                          H0550220
      WRITE (NUVI,0557) CMEVS                                           H0550230
      CMBVS = ABS(CMBVS)                                                H0550240
      CMEVS = CMBVS - 0.2E2                                             H0550250
      WRITE (NUVI,0557) CMEVS                                           H0550260
      CMEVS = 2.0*CMCVS+ABS(2.0*CMFVS+ABS(CMCVS*CMDVS**MCGVI))          H0550270
      WRITE (NUVI,0557) CMEVS                                           H0550280
      CMEVS = CMFVS+CMDVS+ABS(CMCVS+ABS(CMFVS)-ABS(CMDVS-CMCVS))        H0550290
      WRITE (NUVI,0557) CMEVS                                           H0550300
0557  FORMAT  (/2X,F15.1)                                               H0550310
0558  FORMAT  (/2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR/2X,         H0550320
     1 35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                          H0550330
C*****    INTEGER ARGUMENT                                            H0550340
      MCAVI = 25                                                        H0550350
      MCBVI = 4                                                         H0550360
      MCCVI = -129                                                      H0550370
      MCDVI = -2                                                        H0550380
      MCEVI = 2                                                         H0550390
      MCFVI = IABS(MCAVI)                                               H0550400
      MCFVI = MCFVI -25                                                 H0550410
      WRITE (NUVI,0551) MCFVI                                           H0550420
      MCFVI = IABS(MCDVI+IABS(MCBVI/MCDVI)-IABS(MCEVI**2))-MCBVI        H0550430
      WRITE (NUVI,0551) MCFVI                                           H0550440
      MCCVI = IABS(MCCVI)                                               H0550450
      MCFVI = MCCVI - 129                                               H0550460
      WRITE (NUVI,0551) MCFVI                                           H0550470
0551  FORMAT  (/10X,I5)                                                 H0550480
      WRITE (NUVI,0558)                                                 H0550490
C*****    END OF TEST SEGMENT 055                                     H0550500
C*****  WHEN EXECUTING ONLY SEGMENT 055, THE  STOP  AND  END  CARDS   H0550510
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=               H0550520
C*****  IN COLUMNS  1  AND  2  REMOVED.                               H0550530
C=    STOP                                                            H0550540
C=    END                                                             H0550550
C*************************************************************************H0560010
C*****                                                                 H0560020
C*****                          IFFLT - (056)                          H0560030
C*****                                                                 H0560040
C*************************************************************************H0560050
C*****  GENERAL PURPOSE                                        ASA REF H0560060
C*****    TEST INTRINSIC FUNCTION FLOAT (CONVERSION FROM         8.2   H0560070
C*****    INTEGER TO REAL)                                    (TABLE 3)H0560080
C*****                                                                 H0560090
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0560100
C*****                                                                 H0071955
C*****  WHEN EXECUTING ONLY SEGMENT 056, THE FOLLOWING STATEMENT       H0071960
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.        H0071965
C*****                                                                 H0071970
C=    NUVI = 6                                                        H0071975
C*****                                                                 H0071980
      WRITE (NUVI,0560)                                                 H0560110
0560  FORMAT  (1H1,1X,34HIFFLT - (056) INTRINSIC FUNCTION--/16X,        H0560120
     15HFLOAT/ 2X,14HASA REF. - 8.2/2X,7HRESULTS)                       H0560130
C*****    HEADER FOR SEGMENT 056                                      H0560140
C*****    ARGUMENT IS INTEGER, FUNCTION IS REAL                       H0560150
      MCAVI = 64                                                        H0560160
      MCBVI = -512                                                      H0560170
      MCCVI = 2                                                         H0560180
      MCDVI = 4                                                         H0560190
      MCEVI = 8                                                         H0560200
      CMAVS = FLOAT(MCAVI)                                              H0560210
      CMBVS = CMAVS - 64.0                                              H0560220
      WRITE (NUVI,0561) CMBVS                                           H0560230
      CMAVS = FLOAT(MCBVI)                                              H0560240
      CMBVS = CMAVS + 512.0                                             H0560250
      WRITE (NUVI,0561) CMBVS                                           H0560260
      CMBVS= FLOAT(-2*MCEVI)+FLOAT(MCCVI*MCDVI)*FLOAT(MCEVI/MCDVI)-     H0560270
     -  FLOAT(MCDVI**MCCVI) + 16.0                                      H0560280
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      WRITE (NUVI,0561) CMBVS                                          H0560290
      WRITE (NUVI,0562)                                                H0560300
      WRITE (NUVI,0563)                                                H0560310
0561  FORMAT  (/2X,F15.1)                                              H0560320
0562  FORMAT  (/2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR)           H0560330
0563  FORMAT  (2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)              H0560340
C*****    END OF TEST SEGMENT 056                                      H0560350
C*****  WHEN EXECUTING ONLY SEGMENT 056, THE  STOP  AND  END  CARDS    H0560360
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H0560370
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0560380
C=    STOP                                                             H0560390
C=    END                                                              H0560400
C*****************************************************************************H0570010
C*****                                                                H0570020
C*****                          IFFIX - (057)                        H0570030
C*****                                                               H0570040
C*****************************************************************************H0570050
C*****  GENERAL PURPOSE                                        ASA REF H0570060
C*****    TEST INTRINSIC FUNCTION - IFIX - (CONVERSION FROM      8.2   H0570070
C*****    REAL TO INTEGER)                                    (TABLE 3)H0570080
C*****                                                               H0570090
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   H0570100
C*****                                                               H0071985
C*****  WHEN EXECUTING ONLY SEGMENT 057, THE FOLLOWING STATEMENT     H0071990
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.      H0071995
C*****                                                               H0072000
C=    NUVI = 6                                                       H0072005
C*****                                                               H0072010
      WRITE (NUVI,0570)                                              H0570110
0570  FORMAT  (1H1,1X,34HIFFIX - (057) INTRINSIC FUNCTION--/16X,     4H0570120
     1HIFIX//2X,14HASA REF. - 8.2//2X,7HRESULTS)                     H0570130
C*****    HEADER FOR SEGMENT 057                                     H0570140
C*****    SINGLE PRECISION ARGUMENT, INTEGER FUNCTION                H0570150
      CMAVS = 2.4567                                                 H0570160
      CMBVS = -0.2001E2                                              H0570170
      CMCVS = +5.61E-1                                               H0570180
      CMDVS = -123.456E0                                             H0570190
      CMEVS = 789.9876E-2                                            H0570200
      CMFVS = 2.0                                                    H0570210
      CMGVS = -0.5                                                   H0570220
      MCAVI = IFIX(CMAVS)                                            H0570230
      MCBVI = MCAVI -2                                               H0570240
      WRITE (NUVI,0571) MCBVI                                        H0570250
      MCAVI = IFIX(CMBVS)                                            H0570260
      MCBVI = MCAVI + 20                                             H0570270
      WRITE (NUVI,0571) MCBVI                                        H0570280
      MCAVI = IFIX(CMCVS)                                            H0570290
      WRITE (NUVI,0571) MCAVI                                        H0570300
      MCAVI = IFIX(CMDVS)                                            H0570310
      MCBVI = MCAVI + 123                                            H0570320
      WRITE (NUVI,0571) MCBVI                                        H0570330
      MCAVI = IFIX(CMEVS)                                            H0570340
      MCBVI = MCAVI - 7                                              H0570350
      WRITE (NUVI,0571) MCBVI                                        H0570360
      MCBVI = IFIX(CMBVS*CMGVS)*IFIX(CMDVS/CMFVS)-                   H0570370
     - IFIX(CMBVS**IFIX(CMFVS))+1010                                 H0570380
      WRITE(NUVI,0571) MCBVI                                         H0570390
      WRITE (NUVI,0572)                                              H0570400
      WRITE (NUVI,0573)                                              H0570410
0571  FORMAT    (/10X,I6)                                            H0570420
0572  FORMAT     (/2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR)      H0570430
0573  FORMAT     (2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)         H0570440
C*****    END OF TEST SEGMENT 057                                    H0570450
C*****  WHEN EXECUTING ONLY SEGMENT 057, THE  STOP  AND  END  CARDS  H0570460
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=              H0570470
C*****  IN COLUMNS  1  AND  2  REMOVED.                              H0570480
C=    STOP                                                           H0570490
C=    END                                                            H0570500
```

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C*****************************************************************************H0580010
C*****                                                                        H0580020
C*****                          IFSGN - (058)                                 H0580030
C*****                                                                        H0580040
C*****************************************************************************H0580050
C*****  GENERAL PURPOSE                                              ASA REF H0580060
C*****     TEST INTRINSIC FUNCTION - SIGN, ISIGN - (TRANSFER     8.2/31-32H0580070
C*****     OF SIGN - SIGN OF A2 TIMES ABS(A1)  )                 (TABLE 3)H0580080
C*****                                                                        H0580090
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.           H0580100
C*****                                                                        H0072015
C*****  WHEN EXECUTING ONLY SEGMENT 058, THE FOLLOWING STATEMENT              H0072020
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.               H0072025
C*****                                                                        H0072030
C=     NUVI = 6                                                               H0072035
C*****                                                                        H0072040
       WRITE (NUVI,0580)                                                      H0580110
0580   FORMAT  (1H1 ,1X,35HIFSGN - (058) INTRINSIC FUNCTIONS--/16X, 24        H0580120
      1  HSIGN, ISIGN (TRANSFER OF/16X,14HARGUMENT SIGN)//2X,14HASA REF.      H0580130
     2- 8.2//2X,7HRESULTS)                                                    H0580140
C*****     HEADER FOR SEGMENT 058                                             H0580150
C*****     ARGUMENTS AND FUNCTION ARE ALL REAL-TYPE (SIGN)                    H0580160
       CMAVS = 1.078                                                          H0580170
       CMBVS = -23.0E1                                                        H0580180
       CMCVS = -5.4567                                                        H0580190
       CMDVS = 7.567E-1                                                       H0580200
       CMGVS = +2.0                                                           H0580210
       CMHVS = -4.0                                                           H0580220
       CMIVS = +8.0                                                           H0580230
       CMEVS = SIGN(CMAVS,CMBVS)                                              H0580240
       CMFVS = CMEVS + 1.078                                                  H0580250
       WRITE (NUVI,0581) CMFVS                                                H0580260
       CMEVS = SIGN(CMAVS,CMDVS)                                              H0580270
       CMFVS = CMEVS - 1.078                                                  H0580280
       WRITE (NUVI,0581) CMFVS                                                H0580290
       CMEVS = SIGN(CMBVS,CMCVS)                                              H0580300
       CMFVS = CMEVS + 23.0E1                                                 H0580310
       WRITE (NUVI,0581) CMFVS                                                H0580320
       CMEVS = SIGN(CMBVS,CMDVS)                                              H0580330
       CMFVS = CMEVS - 23.0E1                                                 H0580340
       WRITE (NUVI,0581) CMFVS                                                H0580350
       CMFVS = SIGN(CMGVS,CMHVS)*SIGN(CMHVS,CMIVS)+                           H0580360
      - SIGN(SIGN(CMIVS,CMBVS),SIGN(CMHVS,CMGVS))                             H0580370
       WRITE(NUVI,0581) CMFVS                                                 H0580380
C*****     ARGUMENTS AND FUNCTION ARE ALL INTEGER-TYPE (ISIGN)                H0580390
       MCAVI = 24                                                             H0580400
       MCBVI = +167                                                           H0580410
       MCCVI = -5980                                                          H0580420
       MCDVI = -12345                                                         H0580430
       MCGVI = 2                                                              H0580440
       MCHVI = -4                                                             H0580450
       MCIVI = 8                                                              H0580460
       MCEVI = ISIGN(MCAVI,MCBVI)                                             H0580470
       MCFVI = MCEVI - 24                                                     H0580480
       WRITE (NUVI,0582) MCFVI                                                H0580490
       MCEVI = ISIGN(MCBVI,MCCVI)                                             H0580500
       MCFVI = MCEVI + 167                                                    H0580510
       WRITE (NUVI,0582) MCFVI                                                H0580520
       MCEVI = ISIGN(MCCVI,MCDVI)                                             H0580530
       MCFVI = MCEVI + 5980                                                   H0580540
       WRITE (NUVI,0582) MCFVI                                                H0580550
       MCEVI = ISIGN(MCDVI,MCAVI)                                             H0580560
       MCFVI = MCEVI - 12345                                                  H0580570
       WRITE (NUVI,0582) MCFVI                                                H0580580
       MCFVI = ISIGN(ISIGN(MCGVI*MCHVI+(2*MCIVI),MCIVI/MCGVI+MCCVI)+          H0580590
      1        ISIGN(+8,MCHVI/MCGVI+MCCVI),MCIVI) - MCHVI **2                 H0580600
       WRITE(NUVI,0582)MCFVI                                                  H0580610
       WRITE (NUVI,0583)                                                      H0580620
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      WRITE(NUVI,0584)                                                  H0580630
0581  FDRMAT      (/2X,F15.1)                                           H0580640
0582  FORMAT      (/10X,I5)                                             H0580650
0583  FDRMAT      (/2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR)        H0580660
0584  FORMAT      (2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)           H0580670
C*****    END OF TEST SEGMENT 058                                     H0580680
C*****  WHEN EXECUTING DNLY SEGMENT 058, THE  STDP  AND  END  CARDS   H0580690
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=               H0580700
C*****  IN COLUMNS  1  AND  2  REMOVED.                               H0580710
C=    STDP                                                            H0580720
C=    END                                                             H0580730
C*******************************************************************H0590010
C*****                                                               H0590020
C*****                          IFDAB - (059)                        H0590030
C*****                                                               H0590040
C*******************************************************************H0590050
C*****  GENERAL PURPDSE                                        ASA REF H0590060
C*****    TEST INTRINSIC FUNCTIDN DABS (ABSDLUTE VALUE DF        8.2  H0590070
C*****    A DDUBLE PRECISIDN ARGUMENT)                       (TABLE 3)H0590080
C*****                                                               H0590090
C*****  S P E C I F I C A T I D N S  SEGMENT 059                     H0590100
C*****                                                               H0011895
C*****  WHEN EXECUTING DNLY SEGMENT 059, THE SPECIFICATIDN STATEMENTS H0011900
C*****  WHICH APPEAR AS CDMMENT CARDS, MUST HAVE THE C=              H0011905
C*****  IN CDLUMNS 1  AND  2  REMDVED.                               H0011910
C*****                                                               H0011915
C=    DDUBLE PRECISIDN DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD     H0011920
C*****                                                               H0011925
C*****  D U T P U T  T A P E  ASSIGNMENT STATEMENT.  ND INPUT TAPE.   H0590110
C*****                                                               H0072045
C*****  WHEN EXECUTING DNLY SEGMENT 059, THE FDLLDWING STATEMENT      H0072050
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.       H0072055
C*****                                                               H0072060
C=    NUVI = 6                                                        H0072065
C*****                                                               H0072070
      WRITE (NUVI,0590)                                               H0590120
0590  FDRMAT (1H1,1X,34HIFDAB - (059) INTRINSIC FUNCTIDN--/16X,       H0590130
     123HDABS (ABSDLUTE VALUE DF/16X,16HA D.P. ARGUMENT)/  2X,        H0590140
     214HASA REF. - 8.2//                                            H0590150
     32X,7HRESULTS)                                                  H0590160
C*****    HEADER FDR SEGMENT 059 WRITTEN                             H0590170
C*****    ARGUMENT AND FUNCTIDN ARE DDUBLE PRECISIDN                 H0590180
      DPAVD = 1.2345678901234D0                                       H0590190
      DPBVD = -2.0D0                                                  H0590200
      DPCVD = -39.4680246813570-1                                     H0590210
      DPDVD = 2.0D0                                                   H0590220
      DPGVD = -4.0D0                                                  H0590230
      DPEVD = 1.0D0                                                   H0590240
      DPEVD = DABS(DPAVD)                                             H0590250
      DPFVD = DPEVD - 1.2345678901234D0                               H0590260
      WRITE (NUVI,0591) DPFVD                                         H0590270
      DPEVD = 2.0D0*DPBVD+DABS(DPDVD*DPGVD+DABS(DPGVD/(2.0D0*DPDVD)   H0590280
     - *DPDVD**2))                                                    H0590290
      WRITE (NUVI,0591) DPEVD                                         H0590300
      DPEVD = 3.0D0                                                   H0590310
      DPEVD = DABS(DPCVD)                                             H0590320
      DPFVD = DPEVD - 39.4680246813570-1                              H0590330
      WRITE (NUVI,0591) DPFVD                                         H0590340
      DPEVD = 4.0D0                                                   H0590350
      DPEVD = DPGVD +DPDVD+DABS(DPBVD+DABS(DPGVD)-DABS(DPDVD-DPBVD))  H0590360
      WRITE (NUVI,0591) DPEVD                                         H0590370
      WRITE (NUVI,0592)                                               H0590380
      WRITE (NUVI,0593)                                               H0590390
0591  FDRMAT (/ D22.10)                                               H0590400
0592  FDRMAT (/ 39H  THE ABDVE ANSWERS SHOULD ALL BE 0 FDR)           H0590410
0593  FORMAT (36H  THIS TEST SEGMENT TD BE SUCCESSFUL)                H0590420
C*****    END DF TEST SEGMENT 059                                    H0590430
C*****  WHEN EXECUTING DNLY SEGMENT 059, THE  STDP  AND  END  CARDS   H0590440
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C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H0590450
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0590460
C=     STOP                                                             H0590470
C=     END                                                              H0590480
C*****************************************************************************H0600010
C*****                                                                   H0600020
C*****                          IFTRN - (060)                            H0600030
C*****                                                                   H0600040
C*****************************************************************************H0600050
C*****  GENERAL PURPOSE                                        ASA REF  H0600060
C*****     TEST INTRINSIC FUNCTIONS AINT,INT, AND IDINT --       8.2     H0600070
C*****     TRUNCATION (SIGN OF A * LARGEST INTEGER LE ABS(A) )  (TABLE 3)H0600080
C*****                                                                   H0600090
C*****  S P E C I F I C A T I O N S  SEGMENT 060                         H0600100
C*****                                                                   H0011930
C*****  WHEN EXECUTING ONLY SEGMENT 060, THE SPECIFICATION STATEMENTS    H0011935
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                  H0011940
C*****  IN COLUMNS 1  AND  2  REMOVED.                                  H0011945
C*****                                                                   H0011950
C=     DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD                         H0011955
C*****                                                                   H0011960
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0600110
C*****                                                                   H0072075
C*****  WHEN EXECUTING ONLY SEGMENT 060, THE FOLLOWING STATEMENT         H0072080
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.          H0072085
C*****                                                                   H0072090
C=     NUVI = 6                                                         H0072095
C*****                                                                   H0072100
      WRITE (NUVI,0600)                                                 H0600120
0600  FORMAT (1H1, 1X,34HIFTRN - (060) INTRINSIC FUNCTION--/10X,29HAINT,H0600130
     1 INT, IDINT (TRUNCATION)//16H  ASA REF. - 8.2//2X,7HRESULTS)      H0600140
C*****    HEADER FOR SEGMENT 060 WRITTEN                                H0600150
C*****    TEST OF AINT - REAL ARGUMENT AND REAL FUNCTION                H0600160
      CMAVS = 1.999                                                     H0600170
      CMBVS = 999.001                                                   H0600180
      CMCVS = -0.45678                                                  H0600190
      CMDVS = -9876.0                                                   H0600200
      CMEVS = 1.0                                                       H0600210
      CMEVS = AINT(CMAVS)                                               H0600220
      CMFVS = CMEVS - 1.0                                               H0600230
      WRITE (NUVI,0601) CMFVS                                           H0600240
      CMEVS = 2.0                                                       H0600250
      CMEVS = AINT(CMBVS)                                               H0600260
      CMFVS = CMEVS - 999.0                                             H0600270
      WRITE (NUVI,0601) CMFVS                                           H0600280
      CMEVS = 3.0                                                       H0600290
      CMEVS = AINT(CMCVS)                                               H0600300
      CMFVS = CMEVS                                                     H0600310
      WRITE (NUVI,0601) CMFVS                                           H0600320
      CMEVS = 4.0                                                       H0600330
      CMEVS = AINT(CMDVS)                                               H0600340
      CMFVS = CMEVS + 9876.0                                            H0600350
      WRITE (NUVI,0601) CMFVS                                           H0600360
      WRITE (NUVI,0603)                                                 H0600370
C*****    TEST OF INT - REAL ARGUMENT BUT INTEGER FUNCTION              H0600380
      MCAVI = 5                                                         H0600390
      MCAVI = INT(CMAVS)                                                H0600400
      MCBVI = MCAVI - 1                                                 H0600410
      WRITE (NUVI,0604) MCBVI                                           H0600420
      MCAVI = 6                                                         H0600430
      MCAVI = INT(CMBVS)                                                H0600440
      MCBVI = MCAVI - 999                                               H0600450
      WRITE (NUVI,0604) MCBVI                                           H0600460
      MCAVI = 7                                                         H0600470
      MCAVI = INT(CMCVS)                                                H0600480
      WRITE (NUVI,0604) MCAVI                                           H0600490
      MCAVI = 8                                                         H0600500
      MCAVI = INT(CMDVS)                                                H0600510
```

```
      MCBVI = MCAVI + 9876                                                H0600520
      WRITE (NUVI,0604) MCBVI                                             H0600530
      WRITE (NUVI,0605)                                                   H0600540
C*****    TEST OF IDINT - DOUBLE PRECISION ARGUMENT AND FUNCTION          H0600550
      DPAVD = 1.99999999999999D1                                          H0600560
      DPBVD = +99.000500189123D0                                          H0600570
      DPCVD = -0.9876543210198D0                                          H0600580
      DPDVD = -456.7890987651 4D1                                         H0600590
      MCAVI = 9                                                           H0600600
      MCAVI = IDINT(DPAVD)                                                H0600610
      MCBVI = MCAVI - 19                                                  H0600620
      WRITE (NUVI,0606) MCBVI                                             H0600630
      MCAVI = 10                                                          H0600640
      MCAVI = IDINT(DPBVD)                                                H0600650
      MCBVI = MCAVI - 99                                                  H0600660
      WRITE (NUVI,0606) MCBVI                                             H0600670
      MCAVI = 11                                                          H0600680
      MCAVI = IDINT(DPCVD)                                                H0600690
      WRITE (NUVI,0606) MCAVI                                             H0600700
      MCAVI = 12                                                          H0600710
      MCAVI = IDINT(DPDVD)                                                H0600720
      MCBVI = MCAVI + 4567                                                H0600730
      WRITE (NUVI,0606) MCBVI                                             H0600740
      WRITE (NUVI,0607)                                                   H0600750
      WRITE (NUVI,0608)                                                   H0600760
0601  FORMAT (/F11.1)                                                     H0600770
0603  FORMAT (  2X,16HEND OF AINT TEST)                                   H0600780
0604  FORMAT (/I10)                                                       H0600790
0605  FORMAT (  2X,15HEND OF INT TEST)                                    H0600800
0606  FORMAT (/I10)                                                       H0600810
0607  FORMAT (  2X,17HEND OF IDINT TEST)                                  H0600820
0608  FORMAT (  40H  ALL ABOVE ANSWERS SHOULD BE 0 FOR THIS/              H0600830
     1 31H  TEST SEGMENT TO BE SUCCESSFUL)                                H0600840
C*****    END OF TEST SEGMENT 060                                         H0600850
C*****  WHEN EXECUTING ONLY SEGMENT 060, THE  STOP  AND  END  CARDS       H0600860
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                   H0600870
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0600880
C=    STOP                                                                H0600890
C=    END                                                                 H0600900
C*******************************************************************************H0610010
C*****                                                                   H0610020
C*****                          IFMOD - (061)                            H0610030
C*****                                                                   H0610040
C*******************************************************************************H0610050
C*****  GENERAL PURPOSE                                        ASA REF   H0610060
C*****    TEST INTRINSIC FUNCTION AMOD AND MOD - REMAINDERING,    8.2     H0610070
C*****    WHICH IS DEFINED AS A1-(A1/A2)A2 WHERE (X) IS AN     (TABLE 3)H0610080
C*****    INTEGER WHOSE MAGNITUDE IS LE ABS(X) AND WHOSE SIGN             H0610090
C*****    IS THE SAME AS X.                                               H0610100
C*****                                                                    H0610110
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H0610120
C*****                                                                    H0072105
C*****  WHEN EXECUTING ONLY SEGMENT 061, THE FOLLOWING STATEMENT          H0072110
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.           H0072115
C*****                                                                    H0072120
C=    NUVI = 6                                                            H0072125
C*****                                                                    H0072130
      WRITE (NUVI,0610)                                                   H0610130
0610  FORMAT (1H1, 1X,34HIFMOD - (061) INTRINSIC FUNCTION--/16X,24HAMOD,  H0610140
     1 MOD (REMAINDERING)//16H  ASA REF. - 8.2//2X,                       H0610150
     2 7HRESULTS)                                                         H0610160
C*****    HEADER FOR SEGMENT 061 WRITTEN                                  H0610170
C*****    TEST OF AMOD - REAL ARGUMENTS AND REAL FUNCTION                 H0610180
      CMAVS = 16.0625                                                     H0610190
      CMBVS = -4.0                                                        H0610200
      CMCVS = -8.125                                                      H0610210
      CMDVS = 2.5                                                         H0610220
      CMEVS = -1.0                                                        H0610230
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      CMFVS = 1.0                                                       H0610240
      CMFVS = AMOD(CMAVS,CMBVS)                                         H0610250
      CMGVS = CMFVS - 0.0625                                            H0610260
      WRITE (NUVI,0611) CMGVS                                           H0610270
      CMFVS = 2.0                                                       H0610280
      CMFVS = AMOD(CMCVS,CMDVS)                                         H0610290
      CMGVS = CMFVS + 0.625                                             H0610300
      WRITE (NUVI,0611) CMGVS                                           H0610310
      CMFVS = 3.0                                                       H0610320
      CMFVS = AMOD(CMBVS,CMEVS)                                         H0610330
      CMGVS = CMFVS + 0.0                                               H0610340
      WRITE (NUVI,0611) CMGVS                                           H0610350
      CMFVS = 4.0                                                       H0610360
      CMFVS = AMOD(CMBVS,CMAVS)                                         H0610370
      CMGVS = CMFVS + 4.0                                               H0610380
      WRITE (NUVI,0611) CMGVS                                           H0610390
      WRITE (NUVI,0612)                                                 H0610400
C*****    TEST OF MOD - INTEGER ARGUMENTS AND INTEGER FUNCTION          H0610410
      MCAVI = 35                                                        H0610420
      MCBVI = -5                                                        H0610430
      MCCVI = -998                                                      H0610440
      MCDVI = 9                                                         H0610450
      MCEVI = 10                                                        H0610460
      MCFVI = 1                                                         H0610470
      MCFVI = MOD(MCAVI,MCBVI)                                          H0610480
      MCGVI = MCFVI + 0                                                 H0610490
      WRITE (NUVI,0613) MCGVI                                           H0610500
      MCFVI = 2                                                         H0610510
      MCFVI = MOD(MCCVI,MCDVI)                                          H0610520
      MCGVI = MCFVI + 8                                                 H0610530
      WRITE (NUVI,0613) MCGVI                                           H0610540
      MCFVI = 3                                                         H0610550
      MCFVI = MOD(MCAVI,MCDVI)                                          H0610560
      MCGVI = MCFVI - 8                                                 H0610570
      WRITE (NUVI,0613) MCGVI                                           H0610580
      MCFVI = 4                                                         H0610590
      MCFVI = MOD(MCBVI,MCEVI)                                          H0610600
      MCGVI = MCFVI + 5                                                 H0610610
      WRITE (NUVI,0613) MCGVI                                           H0610620
      WRITE (NUVI,0614)                                                 H0610630
0611  FORMAT (/F11.1)                                                   H0610640
0612  FORMAT    (//2X,17HEND OF AMOD TEST.)                             H0610650
0613  FORMAT (/I10)                                                     H0610660
0614  FORMAT (//2X,16HENO OF MOO TEST.//2X,                             H0610670
     138HALL ABOVE ANSWERS SHOULD BE 0 FOR THIS/2X,                     H0610680
     230HTEST SEGMENT TO BE SUCCESSFUL.)                                H0610690
C*****    END OF TEST SEGMENT 061                                       H0610700
C*****  WHEN EXECUTING ONLY SEGMENT 061, THE  STOP  AND  END  CARDS     H0610710
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0610720
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0610730
C=    STOP                                                              H0610740
C=    END                                                               H0610750
C*************************************************************************H0620010
C*****                                                                 H0620020
C*****                        IFMAX - (062)                            H0620030
C*****                                                                 H0620040
C*************************************************************************H0620050
C*****  GENERAL PURPOSE                                        ASA REF. H0620060
C*****    TEST OF INTRINSIC FUNCTION AMAX0,AMAX1,MAX0,MAX1 AND   8.2   H0620070
C*****    OMAX1 -- CHOOSING LARGEST VALUE                     (TABLE 3)H0620080
C*****                                                                 H0620090
C*****  S P E C I F I C A T I O N S  SEGMENT 062                       H0620100
C*****                                                                 H0011965
C*****  WHEN EXECUTING ONLY SEGMENT 062, THE SPECIFICATION STATEMENTS  H0011970
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                H0011975
C*****  IN COLUMNS 1  AND  2  REMOVED.                                 H0011980
C*****                                                                 H0011985
C=    DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD            H0011990
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C*****                                                                  H0011995
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0620110
C*****                                                                  H0072135
C*****  WHEN EXECUTING ONLY SEGMENT 062, THE FOLLOWING STATEMENT        H0072140
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.         H0072145
C*****                                                                  H0072150
C=     NUVI = 6                                                         H0072155
C*****                                                                  H0072160
      WRITE (NUVI,0620)                                                 H0620120
0620  FORMAT (1H1, 1X,35HIFMAX - (062) INTRINSIC FUNCTIONS--/13X,28HAMAXH0620130
     10,AMAX1,MAX0, MAX1,DMAX1    / 2X,14HASA REF. - 8.2//2X,7HRESULTS) H0620140
C*****     TEST OF AMAX0 - INTEGER ARGUMENTS, REAL FUNCTION       8.2/19H0620150
C*****     TWO ARGUMENTS FOR AMAX0                                      H0620160
      WRITE (NUVI,0625)                                                 H0620170
      MCAVI = 128                                                       H0620180
      MCBVI = 64                                                        H0620190
      MCCVI = -8                                                        H0620200
      MCDVI = -4096                                                     H0620210
      CMEVS = 1.0                                                       H0620220
      CMEVS = AMAX0(MCAVI,MCBVI)                                        H0620230
      CMFVS = CMEVS - 128.0                                             H0620240
      WRITE (NUVI,0621) CMFVS                                           H0620250
      CMEVS = 2.0                                                       H0620260
      CMEVS = AMAX0(MCCVI,MCCVI)                                        H0620270
      CMFVS = CMEVS + 8.0                                               H0620280
      WRITE (NUVI,0621) CMFVS                                           H0620290
      CMEVS = 3.0                                                       H0620300
      CMEVS = AMAX0(MCAVI,MCCVI)                                        H0620310
      CMFVS = CMEVS - 128.0                                             H0620320
      WRITE (NUVI,0621) CMFVS                                           H0620330
      CMEVS = 4.0                                                       H0620340
      CMEVS = AMAX0(MCCVI,MCDVI)                                        H0620350
      CMFVS = CMEVS + 8.0                                               H0620360
      WRITE (NUVI,0621) CMFVS                                           H0620370
      CMEVS = 5.0                                                       H0620380
      CMEVS = AMAX0(MCDVI,MCBVI)                                        H0620390
      CMFVS = CMEVS - 64.0                                              H0620400
      WRITE (NUVI,0621) CMFVS                                           H0620410
      MCGVI = 2                                                         H0620420
      WRITE (NUVI,0622) MCGVI                                           H0620430
C*****     THREE ARGUMENTS FOR AMAX0                                    H0620440
      CMEVS = 6.0                                                       H0620450
      CMEVS = AMAX0(MCCVI,MCBVI,MCAVI)                                  H0620460
      CMFVS = CMEVS - 128.0                                             H0620470
      WRITE (NUVI,0621) CMFVS                                           H0620480
      CMEVS = 7.0                                                       H0620490
      CMEVS = AMAX0(MCDVI,MCBVI,MCCVI)                                  H0620500
      CMFVS = CMEVS - 64.0                                              H0620510
      WRITE (NUVI,0621) CMFVS                                           H0620520
      CMEVS = 8.0                                                       H0620530
      CMEVS = AMAX0(MCDVI,MCCVI,MCCVI)                                  H0620540
      CMFVS = CMEVS + 8.0                                               H0620550
      WRITE (NUVI,0621) CMFVS                                           H0620560
      MCGVI = 3                                                         H0620570
      WRITE (NUVI,0622) MCGVI                                           H0620580
C*****     FOUR OR FIVE ARGUMENTS FOR AMAX0                             H0620590
      CMEVS = 9.0                                                       H0620600
      CMEVS = AMAX0(MCAVI,MCBVI,MCCVI,MCDVI)                            H0620610
      CMFVS = CMEVS - 128.0                                             H0620620
      WRITE (NUVI,0621) CMFVS                                           H0620630
      CMEVS = 10.0                                                      H0620640
      CMEVS = AMAX0(MCAVI,MCBVI,MCCVI,MCDVI,MCAVI)                      H0620650
      CMFVS = CMEVS - 128.0                                             H0620660
      WRITE (NUVI,0621) CMFVS                                           H0620670
      WRITE (NUVI,0623)                                                 H0620680
C*****     TEST OF AMAX1 - REAL ARGUMENTS AND FUNCTION            8.2/20H0620690
C*****     TWO ARGUMENTS FOR AMAX1                                      H0620700
      WRITE (NUVI,0624)                                                 H0620710
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      CMAVS = 102.0E0                                                   H0620720
      CMBVS = +76.12                                                    H0620730
      CMCVS = -85.43E1                                                  H0620740
      CMDVS = -0.986                                                    H0620750
      CMEVS = AMAX1(CMAVS,CMBVS)                                        H0620760
      CMFVS = CMEVS - 102.0E0                                           H0620770
      WRITE (NUVI,0621) CMFVS                                           H0620780
      CMEVS = AMAX1(CMBVS,CMCVS)                                        H0620790
      CMFVS = CMEVS - 76.12                                             H0620800
      WRITE (NUVI,0621) CMFVS                                           H0620810
      CMEVS = AMAX1(CMDVS,CMCVS)                                        H0620820
      CMFVS = CMEVS + 0.986                                             H0620830
      WRITE (NUVI,0621) CMFVS                                           H0620840
      MCGVI = 2                                                         H0620850
      WRITE (NUVI,0622) MCGVI                                           H0620860
C*****    THREE ARGUMENTS FOR AMAX1                                     H0620870
      CMEVS = AMAX1(CMCVS,CMBVS,CMAVS)                                  H0620880
      CMFVS = CMEVS - 102.0E0                                           H0620890
      WRITE (NUVI,0621) CMFVS                                           H0620900
      CMEVS = AMAX1(CMDVS,CMBVS,CMCVS)                                  H0620910
      CMFVS = CMEVS - 76.12                                             H0620920
      WRITE (NUVI,0621) CMFVS                                           H0620930
      CMEVS = AMAX1(CMCVS,CMCVS,CMCVS)                                  H0620940
      CMFVS = CMEVS - CMCVS                                             H0620950
      WRITE (NUVI,0621) CMFVS                                           H0620960
      MCGVI = 3                                                         H0620970
      WRITE (NUVI,0622) MCGVI                                           H0620980
C*****    FOUR OR FIVE ARGUMENTS FOR AMAX1                              H0620990
      CMEVS = AMAX1(CMAVS,CMBVS,CMCVS,CMDVS)                            H0621000
      CMFVS = CMEVS - 102.0E0                                           H0621010
      WRITE (NUVI,0621) CMFVS                                           H0621020
      CMEVS = AMAX1(CMAVS,CMCVS,CMDVS,CMBVS,CMAVS)                      H0621030
      CMFVS = CMEVS - 102.0E0                                           H0621040
      WRITE (NUVI,0621) CMFVS                                           H0621050
      WRITE (NUVI,0623)                                                 H0621060
C*****    TEST OF MAX0 - INTEGER ARGUMENTS AND FUNCTION          8.2/21H0621070
C*****    TWO ARGUMENTS FOR MAX0                                        H0621080
      WRITE (NUVI,0628)                                                 H0621090
      MCEVI = MAX0(MCAVI,MCBVI)                                         H0621100
      MCFVI = MCEVI - 128                                               H0621110
      WRITE (NUVI,0626) MCFVI                                           H0621120
      MCEVI = MAX0(MCCVI,MCDVI)                                         H0621130
      MCFVI = MCEVI + 8                                                 H0621140
      WRITE (NUVI,0626) MCFVI                                           H0621150
      MCEVI = MAX0(MCBVI,MCCVI)                                         H0621160
      MCFVI = MCEVI - 64                                                H0621170
      WRITE (NUVI,0626) MCFVI                                           H0621180
      MCEVI = MAX0(MCCVI,MCCVI)                                         H0621190
      MCFVI = MCEVI - MCCVI                                             H0621200
      WRITE (NUVI,0626) MCFVI                                           H0621210
      MCGVI = 2                                                         H0621220
      WRITE (NUVI,0622) MCGVI                                           H0621230
C*****    THREE ARGUMENTS FOR MAX0                                      H0621240
      MCEVI = MAX0(MCCVI,MCBVI,MCAVI)                                   H0621250
      MCFVI = MCEVI - 128                                               H0621260
      WRITE (NUVI,0626) MCFVI                                           H0621270
      MCEVI = MAX0(MCDVI,MCDVI,MCCVI)                                   H0621280
      MCFVI = MCEVI + 8                                                 H0621290
      WRITE (NUVI,0626) MCFVI                                           H0621300
      MCGVI = 3                                                         H0621310
      WRITE (NUVI,0622) MCGVI                                           H0621320
C*****    FOUR OR FIVE ARGUMENTS FOR MAX0                               H0621330
      MCEVI = MAX0(MCDVI,MCCVI,MCBVI,MCAVI)                             H0621340
      MCFVI = MCEVI - 128                                               H0621350
      WRITE (NUVI,0626) MCFVI                                           H0621360
      MCEVI = MAX0(MCAVI,MCCVI,MCBVI,MCDVI,MCBVI)                       H0621370
      MCFVI = MCEVI - 128                                               H0621380
      WRITE (NUVI,0626) MCFVI                                           H0621390
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      WRITE (NUVI,0623)                                                 H0621400
C*****    TEST OF MAX1 - REAL ARGUMENTS AND INTEGER FUNCTION      8.2/22H0621410
C*****    TWO ARGUMENTS FOR MAX1                                        H0621420
      WRITE (NUVI,0629)                                                 H0621430
      MCEVI = MAX1(CMAVS,CMBVS)                                         H0621440
      MCFVI = MCEVI - 102                                               H0621450
      WRITE (NUVI,0626) MCFVI                                           H0621460
      MCEVI = MAX1(CMBVS,CMCVS)                                         H0621470
      MCFVI = MCEVI - 76                                                H0621480
      WRITE (NUVI,0626) MCFVI                                           H0621490
      MCEVI = MAX1(CMDVS,CMCVS)                                         H0621500
      MCFVI = MCEVI + 0                                                 H0621510
      WRITE (NUVI,0626) MCFVI                                           H0621520
      MCGVI = 2                                                         H0621530
      WRITE (NUVI,0622) MCGVI                                           H0621540
C*****    THREE ARGUMENTS FOR MAX1                                      H0621550
      MCEVI = MAX1(CMCVS,CMBVS,CMAVS)                                   H0621560
      MCFVI = MCEVI - 102                                               H0621570
      WRITE (NUVI,0626) MCFVI                                           H0621580
      MCEVI = MAX1(CMDVS,CMCVS,CMBVS)                                   H0621590
      MCFVI = MCEVI - 76                                                H0621600
      WRITE (NUVI,0626) MCFVI                                           H0621610
      MCGVI = 3                                                         H0621620
      WRITE (NUVI,0622) MCGVI                                           H0621630
C*****    FOUR OR FIVE ARGUMENTS FOR MAX1                               H0621640
      MCEVI = MAX1(CMAVS,CMBVS,CMCVS,CMDVS)                             H0621650
      MCFVI = MCEVI - 102                                               H0621660
      WRITE (NUVI,0626)  MCFVI                                          H0621670
      MCEVI = MAX1(CMAVS,CMCVS,CMBVS,CMAVS,CMDVS)                       H0621680
      MCFVI = MCEVI - 102                                               H0621690
      WRITE (NUVI,0626) MCFVI                                           H0621700
      WRITE (NUVI,0623)                                                 H0621710
C*****    TEST OF DMAX1 - DOUBLE PRECISION ARGUMENTS AND FUNCTION 8.2/23H0621720
C*****    TWO ARGUMENTS FOR DMAX1                                       H0621730
      WRITE (NUVI,9999)                                                 H0621740
      MCAVD = 23.0D-1                                                   H0621750
      MCBVD = 111.789789D0                                              H0621760
      MCCVD = -99.66D-1                                                 H0621770
      MCDVD = -456.123D0                                                H0621780
      MCEVD = DMAX1(MCAVD,MCBVD)                                        H0621790
      MCFVD = MCEVD - 111.789789D0                                      H0621800
      WRITE (NUVI,0627) MCFVD                                           H0621810
      MCEVD = DMAX1(MCAVD,MCCVD)                                        H0621820
      MCFVD = MCEVD - 23.0D-1                                           H0621830
      WRITE (NUVI,0627) MCFVD                                           H0621840
      MCEVD = DMAX1(MCDVD,MCCVD)                                        H0621850
      MCFVD = MCEVD + 99.66D-1                                          H0621860
      WRITE (NUVI,0627) MCFVD                                           H0621870
      MCEVD = DMAX1(MCDVD,MCDVD)                                        H0621880
      MCFVD = MCEVD - MCDVD                                             H0621890
      WRITE (NUVI,0627) MCFVD                                           H0621900
      MCGVI = 2                                                         H0621910
      WRITE (NUVI,0622) MCGVI                                           H0621920
C*****    THREE ARGUMENTS FOR DMAX1                                     H0621930
      MCEVD = DMAX1(MCAVD,MCCVD,MCBVD)                                  H0621940
      MCFVD = MCEVD - 111.789789D0                                      H0621950
      WRITE (NUVI,0627) MCFVD                                           H0621960
      MCEVD = DMAX1(MCCVD,MCDVD,MCAVD)                                  H0621970
      MCFVD = MCEVD - 23.0D-1                                           H0621980
      WRITE (NUVI,0627) MCFVD                                           H0621990
      MCEVD = DMAX1(MCCVD,MCCVD,MCDVD)                                  H0622000
      MCFVD = MCEVD + 99.66D-1                                          H0622010
      WRITE (NUVI,0627) MCFVD                                           H0622020
      MCGVI = 3                                                         H0622030
      WRITE (NUVI,0622) MCCVI                                           H0622040
C*****    FOUR OR FIVE ARGUMENTS FOR DMAX1                              H0622050
      MCEVD = DMAX1(MCAVD,MCCVD,MCBVD,MCDVD)                            H0622060
      MCFVD = MCEVD - 111.789789D0                                      H0622070
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      WRITE (NUVI,0627) MCFVD                                          H0622080
      MCEVD = DMAX1(MCCVD,MCCVD,MCDVD,MCBVD,MCAVD)                     H0622090
      MCFVD = MCEVD - 111.789789D0                                     H0622100
      WRITE (NUVI,0627) MCFVD                                          H0622110
      WRITE (NUVI,0623)                                                H0622120
      WRITE (NUVI,9998)                                                H0622130
0621  FORMAT ( F11.1)                                                  H0622140
0622  FORMAT (  15X,9H  END OF ,I2,15H-ARGUMENT TEST.)                 H0622150
0623  FORMAT (  15X,31H  END OF 4- OR 5-ARGUMENT TEST.)                H0622160
0624  FORMAT ( /2X,15HTEST OF AMAX1--)                                 H0622170
0625  FORMAT ( /2X,15HTEST OF AMAX0--)                                 H0622180
0626  FORMAT ( I10)                                                    H0622190
0627  FORMAT ( D22.10)                                                 H0622200
0628  FORMAT (2H1 ,14HTEST OF MAX0--)                                  H0622210
0629  FORMAT ( /2X,14HTEST OF MAX1--)                                  H0622220
9998  FORMAT (/ 39H  THE ABOVE ANSWERS SHOULD ALL BE 0 FOR/2X,         H0622230
     135HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                          H0622240
9999  FORMAT ( /2X,15HTEST OF DMAX1--)                                 H0622250
C*****    END OF TEST SEGMENT 062                                      H0622260
C*****  WHEN EXECUTING ONLY SEGMENT 062, THE  STOP  AND  END  CARDS    H0622270
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H0622280
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0622290
C=    STOP                                                             H0622300
C=    END                                                              H0622310
C*************************************************************************H0630010
C*****                                                                H0630020
C*****                        IFMIN - (063)                           H0630030
C*****                                                                H0630040
C*************************************************************************H0630050
C*****  GENERAL PURPOSE                                        ASA REF H0630060
C*****    TEST INTRINSIC FUNCTIONS AMIN0,AMIN1,MIN0,MIN1 AND     8.2   H0630070
C*****    DMIN1 -- CHOOSING SMALLEST VALUE.                   (TABLE 3)H0630080
C*****                                                                H0630090
C*****  S P E C I F I C A T I O N S  SEGMENT 063                      H0630100
C*****                                                                H0012000
C*****  WHEN EXECUTING ONLY SEGMENT 063, THE SPECIFICATION STATEMENTS  H0012005
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=               H0012010
C*****  IN COLUMNS 1  AND  2  REMOVED.                                H0012015
C*****                                                                H0012020
C=    DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD           H0012025
C*****                                                                H0012030
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0630110
C*****                                                                H0072165
C*****  WHEN EXECUTING ONLY SEGMENT 063, THE FOLLOWING STATEMENT      H0072170
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.       H0072175
C*****                                                                H0072180
C=    NUVI = 6                                                        H0072185
C*****                                                                H0072190
      WRITE (NUVI,0630)                                               H0630120
0630  FORMAT (1H1,1X,35HIFMIN - (063) INTRINSIC FUNCTIONS--/13X,27HAMIN0H0630130
     1,AMIN1,MIN0,MIN1,DMIN1/ 2X,14HASA REF. - 8.2//2X,7HRESULTS)     H0630140
C*****    TEST OF AMIN0 - INTEGER ARGUMENTS, REAL FUNCTION      8.2/24H0630150
C*****    TWO ARGUMENTS FOR AMIN0                                     H0630160
      WRITE (NUVI,0635)                                               H0630170
      MCAVI = 128                                                     H0630180
      MCBVI = 64                                                      H0630190
      MCCVI = -8                                                      H0630200
      MCDVI = -4096                                                   H0630210
      CMEVS = AMIN0(MCAVI,MCBVI)                                      H0630220
      CMFVS = CMEVS - 64.0                                            H0630230
      WRITE (NUVI,0631) CMFVS                                         H0630240
      CMEVS = AMIN0(MCDVI,MCCVI)                                      H0630250
      CMFVS = CMEVS + 4096.0                                          H0630260
      WRITE (NUVI,0631) CMFVS                                         H0630270
      CMEVS = AMIN0(MCBVI,MCCVI)                                      H0630280
      CMFVS = CMEVS + 8.0                                             H0630290
      WRITE (NUVI,0631) CMFVS                                         H0630300
      MCGVI = 2                                                       H0630310
```

```
      WRITE (NUVI,0632) MCGVI                                          H0630320
C*****    THREE-ARGUMENT TEST FOR AMIN0                               H0630330
      CMEVS = AMIN0(MCAVI,MCCVI,MCBVI)                                 H0630340
      CMFVS = CMEVS + 8.0                                              H0630350
      WRITE (NUVI,0631) CMFVS                                          H0630360
      CMEVS = AMIN0(MCBVI,MCBVI,MCDVI)                                 H0630370
      CMFVS = CMEVS + 4096.0                                           H0630380
      WRITE (NUVI,0631) CMFVS                                          H0630390
      MCGVI = 3                                                        H0630400
      WRITE (NUVI,0632) MCGVI                                          H0630410
C*****    FOUR OR FIVE ARGUMENTS FOR AMIN0                            H0630420
      CMEVS = AMIN0(MCAVI,MCCVI,MCDVI,MCBVI)                           H0630430
      CMFVS = CMEVS + 4096.0                                           H0630440
      WRITE (NUVI,0631) CMFVS                                          H0630450
      CMEVS = AMIN0(MCCVI,MCBVI,MCCVI,MCAVI,MCDVI)                     H0630460
      CMFVS = CMEVS + 4096.0                                           H0630470
      WRITE (NUVI,0631) CMFVS                                          H0630480
      WRITE (NUVI,0633)                                                H0630490
C*****    TEST OF AMIN1 - REAL ARGUMENTS, REAL FUNCTION          8.2/25H0630500
C*****    TWO ARGUMENTS TEST FOR AMIN1                                H0630510
      WRITE (NUVI,0634)                                                H0630520
      CMAVS = 26.5                                                     H0630530
      CMBVS = 9.6666                                                   H0630540
      CMCVS = -1.65                                                    H0630550
      CMDVS = -10.001                                                  H0630560
      CMEVS = AMIN1(CMBVS,CMDVS)                                       H0630570
      CMFVS = CMEVS + 10.001                                           H0630580
      WRITE (NUVI,0631) CMFVS                                          H0630590
      CMEVS = AMIN1(CMAVS,CMBVS)                                       H0630600
      CMFVS = CMEVS - 9.6666                                           H0630610
      WRITE (NUVI,0631) CMFVS                                          H0630620
      CMEVS = AMIN1(CMCVS,CMDVS)                                       H0630630
      CMFVS = CMEVS + 10.001                                           H0630640
      WRITE (NUVI,0631) CMFVS                                          H0630650
      CMEVS = AMIN1(CMCVS,CMCVS)                                       H0630660
      CMFVS = CMEVS + 1.65                                             H0630670
      WRITE (NUVI,0631) CMFVS                                          H0630680
      MCGVI = 2                                                        H0630690
      WRITE (NUVI,0632) MCGVI                                          H0630700
C*****    THREE-ARGUMENT TEST FOR AMIN1                               H0630710
      CMEVS = AMIN1(CMBVS,CMCVS,CMDVS)                                 H0630720
      CMFVS = CMEVS + 10.001                                           H0630730
      WRITE (NUVI,0631) CMFVS                                          H0630740
      CMEVS = AMIN1(CMBVS,CMBVS,CMBVS)                                 H0630750
      CMFVS = CMEVS - 9.6666                                           H0630760
      WRITE (NUVI,0631) CMFVS                                          H0630770
      CMEVS = AMIN1(CMAVS,CMBVS,CMCVS)                                 H0630780
      CMFVS = CMEVS + 1.65                                             H0630790
      WRITE (NUVI,0631) CMFVS                                          H0630800
      MCGVI = 3                                                        H0630810
      WRITE (NUVI,0632) MCGVI                                          H0630820
C*****    FOUR OR FIVE-ARGUMENT TEST FOR AMIN1                        H0630830
      CMEVS = AMIN1(CMAVS,CMBVS,CMCVS,CMDVS)                           H0630840
      CMFVS = CMEVS + 10.001                                           H0630850
      WRITE (NUVI,0631) CMFVS                                          H0630860
      CMEVS = AMIN1(CMAVS,CMCVS,CMBVS,CMCVS,CMDVS)                     H0630870
      CMFVS = CMEVS + 10.001                                           H0630880
      WRITE (NUVI,0631) CMFVS                                          H0630890
      WRITE (NUVI,0633)                                                H0630900
C*****    TEST OF MIN0 - INTEGER ARGUMENTS, INTEGER FUNCTION     8.2/26H0630910
C*****    TWO-ARGUMENT TEST FOR MIN0                                  H0630920
      WRITE (NUVI,0636)                                                H0630930
      MCEVI = MIN0(MCBVI,MCAVI)                                        H0630940
      MCFVI = MCEVI - 64                                               H0630950
      WRITE (NUVI,0639) MCFVI                                          H0630960
      MCEVI = MIN0(MCBVI,MCCVI)                                        H0630970
      MCFVI = MCEVI + 8                                                H0630980
      WRITE (NUVI,0639) MCFVI                                          H0630990
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      MCEVI = MIN0(MCCVI,MCDVI)                                         H0631000
      MCFVI = MCEVI + 4096                                              H0631010
      WRITE (NUVI,0639) MCFVI                                           H0631020
      MCEVI = MIN0(MCAVI,0)                                             H0631030
      WRITE (NUVI,0639) MCEVI                                           H0631040
      MCGVI = 2                                                         H0631050
      WRITE (NUVI,0632) MCGVI                                           H0631060
C*****    THREE-ARGUMENT TEST FOR MIN0                                  H0631070
      MCEVI = MIN0(MCAVI,MCCVI,MCBVI)                                   H0631080
      MCFVI = MCEVI + 8                                                 H0631090
      WRITE (NUVI,0639) MCFVI                                           H0631100
      MCEVI = MIN0(MCCVI,MCAVI,MCDVI)                                   H0631110
      MCFVI = MCEVI + 4096                                              H0631120
      WRITE (NUVI,0639) MCFVI                                           H0631130
      MCGVI = 3                                                         H0631140
      WRITE (NUVI,0632) MCGVI                                           H0631150
C*****    FOUR OR FIVE-ARGUMENT TEST FOR MIN0                           H0631160
      MCEVI = MIN0(MCBVI,MCAVI,MCCVI,MCDVI)                             H0631170
      MCFVI = MCEVI + 4096                                              H0631180
      WRITE (NUVI,0639) MCFVI                                           H0631190
      MCEVI = MIN0(MCAVI,MCBVI,MCAVI,MCCVI,MCDVI)                       H0631200
      MCFVI = MCEVI + 4096                                              H0631210
      WRITE (NUVI,0639) MCFVI                                           H0631220
      WRITE (NUVI,0633)                                                 H0631230
C*****    TEST OF MIN1 - REAL ARGUMENTS, INTEGER FUNCTION          8.2/27H0631240
C*****    TWO-ARGUMENT TEST FOR MIN1                                    H0631250
      WRITE (NUVI,0637)                                                 H0631260
      MCEVI = MIN1(CMAVS,CMBVS)                                         H0631270
      MCFVI = MCEVI - 9                                                 H0631280
      WRITE (NUVI,0639) MCFVI                                           H0631290
      MCEVI = MIN1(CMCVS,CMDVS)                                         H0631300
      MCFVI = MCEVI + 10                                                H0631310
      WRITE (NUVI,0639) MCFVI                                           H0631320
      MCEVI = MIN1(CMAVS,CMCVS)                                         H0631330
      MCFVI = MCEVI + 1                                                 H0631340
      WRITE (NUVI,0639) MCFVI                                           H0631350
      MCGVI = 2                                                         H0631360
      WRITE (NUVI,0632) MCGVI                                           H0631370
C*****    THREE-ARGUMENT TEST FOR MIN1                                  H0631380
      MCEVI = MIN1(CMAVS,CMCVS,CMBVS)                                   H0631390
      MCFVI = MCEVI + 1                                                 H0631400
      WRITE (NUVI,0639) MCFVI                                           H0631410
      MCEVI = MIN1(CMAVS,CMCVS,CMDVS)                                   H0631420
      MCFVI = MCEVI + 10                                                H0631430
      WRITE (NUVI,0639) MCFVI                                           H0631440
      MCGVI = 3                                                         H0631450
      WRITE (NUVI,0632) MCGVI                                           H0631460
C*****    FOUR OR FIVE-ARGUMENT TEST FOR MIN1                           H0631470
      MCEVI = MIN1(CMAVS,CMBVS,CMDVS,CMCVS)                             H0631480
      MCFVI = MCEVI + 10                                                H0631490
      WRITE (NUVI,0639) MCFVI                                           H0631500
      MCEVI = MIN1(CMAVS,CMBVS,CMCVS,CMCVS,CMDVS)                       H0631510
      MCFVI = MCEVI + 10                                                H0631520
      WRITE (NUVI,0639) MCFVI                                           H0631530
      WRITE (NUVI,0633)                                                 H0631540
C*****    TEST OF DMIN1 - DOUBLE PRECISION ARGUMENTS, FUNCTION     8.2/28H0631550
C*****    TWO-ARGUMENT TEST FOR DMIN1                                   H0631560
      WRITE (NUVI,0638)                                                 H0631570
      MCAVD = 61.1234D0                                                 H0631580
      MCBVD = 2.0D1                                                     H0631590
      MCCVD = -999.009D-1                                               H0631600
      MCDVD = -1.9D0                                                    H0631610
      MCEVD = DMIN1(MCAVD,MCBVD)                                        H0631620
      MCFVD = MCEVD - 2.0D1                                             H0631630
      WRITE (NUVI,9996) MCFVD                                           H0631640
      MCEVD = DMIN1(MCCVD,MCDVD)                                        H0631650
      MCFVD = MCEVD + 999.009D-1                                        H0631660
      WRITE (NUVI,9996) MCFVD                                           H0631670
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      MCEVD = DMIN1(MCAVD,MCDVD)                                        H0631680
      MCFVD = MCEVD + 1.9D0                                             H0631690
      WRITE (NUVI,9996) MCFVD                                           H0631700
      MCGVI = 2                                                         H0631710
      WRITE (NUVI,0632) MCGVI                                           H0631720
C*****    THREE-ARGUMENT TEST FOR DMIN1                                 H0631730
      MCEVD = DMIN1(MCAVD,MCBVD,MCDVD)                                  H0631740
      MCFVD = MCEVD + 1.9D0                                             H0631750
      WRITE (NUVI,9996) MCFVD                                           H0631760
      MCEVD = DMIN1(MCAVD,MCCVD,MCBVD)                                  H0631770
      MCFVD = MCEVD + 999.009D-1                                        H0631780
      WRITE (NUVI,9996) MCFVD                                           H0631790
      MCGVI = 3                                                         H0631800
      WRITE (NUVI,0632) MCGVI                                           H0631810
C*****    FOUR OR FIVE-ARGUMENT TEST FOR DMIN1                          H0631820
      MCEVD = DMIN1(MCAVD,MCCVD,MCBVD,MCDVD)                            H0631830
      MCFVD = MCEVD + 999.009D-1                                        H0631840
      WRITE (NUVI,9996) MCFVD                                           H0631850
      MCEVD = DMIN1(MCBVD,MCAVD,MCBVD,MCDVD,MCCVD)                      H0631860
      MCFVD = MCEVD + 999.009D-1                                        H0631870
      WRITE (NUVI,9996) MCFVD                                           H0631880
      WRITE (NUVI,0633)                                                 H0631890
      WRITE (NUVI,9997)                                                 H0631900
0631  FORMAT ( F11.1)                                                   H0631910
0632  FORMAT( 15X, 8H  END OF,I2,15H-ARGUMENT TEST.)                    H0631920
0633  FORMAT (  15X, 30H  END OF 4 OR 5-ARGUMENT TEST.)                 H0631930
0634  FORMAT ( /16H  TEST OF AMIN1 )                                    H0631940
0635  FORMAT ( /16H  TEST OF AMIN0 )                                    H0631950
0636  FORMAT ( /16H  TEST OF MIN0  )                                    H0631960
0637  FORMAT (  16H1 TEST OF MIN1  )                                    H0631970
0638  FORMAT ( /16H  TEST OF DMIN1 )                                    H0631980
0639  FORMAT ( I10)                                                     H0631990
9996  FORMAT ( D22.10)                                                  H0632000
9997  FORMAT ( /39H  THE ABOVE ANSWERS SHOULD ALL BE 0 FOR/1X,          H0632010
     1 36H THIS TEST SEGMENT TO BE SUCCESSFUL.)                         H0632020
C*****   END OF TEST SEGMENT 063                                       H0632030
C*****  WHEN EXECUTING ONLY SEGMENT 063, THE  STOP  AND  END  CARDS    H0632040
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H0632050
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0632060
C=    STOP                                                            H0632070
C=    END                                                             H0632080
C*************************************************************************H0640010
C*****                                                                 H0640020
C*****                          IFDSG - (064)                          H0640030
C*****                                                                 H0640040
C*************************************************************************H0640050
C*****  GENERAL PURPOSE                                        ASA REF H0640060
C*****    TEST INTRINSIC FUNCTION DSIGN (TRANSFER OF SIGN WITH    8.2/33H0640070
C*****    DOUBLE PRECISION ARGUMENTS AND FUNCTION)             (TABLE 3)H0640080
C*****                                                                 H0640090
C*****  S P E C I F I C A T I O N S  SEGMENT 064                       H0640100
C*****                                                                 H0012035
C*****  WHEN EXECUTING ONLY SEGMENT 064, THE SPECIFICATION STATEMENTS  H0012040
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                H0012045
C*****  IN COLUMNS 1  AND  2  REMOVED.                                 H0012050
C*****                                                                 H0012055
C=    DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD           H0012060
C*****                                                                 H0012065
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0640110
C*****                                                                 H0072195
C*****  WHEN EXECUTING ONLY SEGMENT 064, THE FOLLOWING STATEMENT       H0072200
C*****  NUVI = 6  MUST HAVE THE  C= IN COLUMNS 1 AND 2 REMOVED.        H0072205
C*****                                                                 H0072210
C=    NUVI = 6                                                        H0072215
C*****                                                                 H0072220
      WRITE (NUVI,0640)                                                H0640120
0640  FORMAT (1H1,1X,34HIFDSG - (064) INTRINSIC FUNCTION--/16X,24HDSIGN H0640130
     1(TRANSFER OF SIGN)/ 2X,14HASA REF. - 8.2//2X,7HRESULTS)          H0640140
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C*****    HEADER FOR SEGMENT 064 WRITTEN                                H0640150
      MCAVD = +9.5D0                                                     H0640160
      MCBVD = 123.4567D1                                                 H0640170
      MCCVD = -5.665D1                                                   H0640180
      MCDVD = -75.57D-0                                                  H0640190
      MCEVD = DSIGN(MCAVD,MCBVD)                                         H0640200
      MCFVD = MCEVD - 9.5D0                                              H0640210
      WRITE (NUVI,0641) MCFVD                                            H0640220
      MCEVD = DSIGN(MCBVD,MCCVD)                                         H0640230
      MCFVD = MCEVD + 123.4567D1                                         H0640240
      WRITE (NUVI,0641) MCFVD                                            H0640250
      MCEVD = DSIGN(MCCVD,MCDVD)                                         H0640260
      MCFVD = MCEVD + 5.665D1                                            H0640270
      WRITE (NUVI,0641) MCFVD                                            H0640280
      MCEVD = DSIGN(MCDVD,MCDVD)                                         H0640290
      MCFVD = MCEVD +75.57D0                                             H0640300
      WRITE (NUVI,0641) MCFVD                                            H0640310
      WRITE (NUVI,0642)                                                  H0640320
0641  FORMAT (1H0,D30.18)                                                H0640330
0642  FORMAT (1H0,1X,38HALL ABOVE ANSWERS SHOULD BE 0 FOR THIS/          H0640340
     12X,30HTEST SEGMENT TO BE SUCCESSFUL.)                              H0640350
C*****    END OF TEST SEGMENT 064                                        H0640360
C*****  WHEN EXECUTING ONLY SEGMENT 064, THE  STOP  AND  END  CARDS      H0640370
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H0640380
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0640390
C=    STOP                                                               H0640400
C=    END                                                                H0640410
      STOP                                                               H9999995
      END                                                                H9999999
 SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.   ID 2
 OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT    ID 4
 DATE, INSTALLATION NAME
      DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT    ID 6
C*****    PART6    ************************************************************H0002300
C*****                                                                   H0002305
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS                  H0002310
C*****                                                                   H0002315
C*****    PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3    H0002320
C*****                                                                   H0002325
C*****    JUNE 1973                                                      H0002330
C*****                                                                   H0002335
C*****    PART 6  OF 14 PARTS                                            H0002340
C*****                                                                   H0002345
C*****    SEGMENTS INCLUDED                                              H0002350
C*****                                                                   H0002355
C*****      IFDIM - 065 DIM, IDIM (POSITIVE DIFFERENCE)                  H0002360
C*****                                                                   H0002365
C*****      IFSGL - 066 SNGL (OBTAIN MOST SIGNIFICANT PART)              H0002370
C*****                                                                   H0002375
C*****      IFREL - 067 REAL (OBTAIN REAL PART OF COMPLEX ARGUMENT)      H0002380
C*****                                                                   H0002385
C*****      IFIMG - 068 AIMAG (OBTAIN IMAGINARY PART OF COMPLEX NO.)     H0002390
C*****                                                                   H0002395
C*****      IFDBL - 069 DBLE (EXPRESS REAL ARGUMENT IN D.P. FORM)        H0002400
C*****                                                                   H0002405
C*****      IFCPX - 070 CMPLX (EXPRESS TWO REAL ARG. IN COMPLEX FORM)    H0002410
C*****                                                                   H0002415
C*****      IFCJG - 071 CONJG (OBTAIN CONJUGATE OF A COMPLEX NUMBER)     H0002420
C*****                                                                   H0002425
C*****      IFBMS - 072  ALL INTRINSIC FUNCTIONS                         H0002430
C*****                                                                   H0002435
C*****      IFFMS - 073  ALL INTRINSIC FUNCTIONS                         H0002440
C*****                                                                   H0012300
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN            H0012305
C*****  SEGMENTS 065, 066, 067, 068, 069, 070, 071, 072, 073             H0012310
C*****  ARE RUN AS ONE MAIN PROGRAM.                                     H0012315
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C*****                                                                  H0012320
      INTEGER MCA3I(2,3,3)                                              H0012325
      DIMENSION MCA1I(5), AC2S(5,6)                                     H0012330
      OOUBLE PRECISION MCAVO, MCBVO, MCCVO, MCOVO, MCEVO, MCFVO, MCGVO, H0012335
     1         CMAVO, CMBVO, CMCVO , OPA10(5), FC2O(5,5)                H0012340
      DOUBLE PRECISION OPAVO, OPBVO, OPCVO, OPOVO, OPEVO, OPFVO, OPGVO  H0012345
      COMPLEX CHAVC, CHBVC, CHCVC, CHOVC, CHEVC, CHFVC,                 H0012350
     1         CHGVC, CHHVC, CHIVC, CHJVC, CHKVC, CHLVC                 H0012355
C*****                                                                  H0012360
C*****  END OF SPECIFICATIONS FOR SEGMENTS                              H0012365
C*****  065, 066, 067, 068, 069, 070, 071, 072, 073                     H0012370
C**********************************************************************H0650010
C*****                                                                  H0650020
C*****                          IFOIM - (065)                           H0650030
C*****                                                                  H0650040
C**********************************************************************H0650050
C*****  GENERAL PURPOSE                                          ASA -EF H0650060
C*****    TEST INTRINSIC FUNCTION DIM AND IDIM--POSITIVE           8.2   H0650070
C*****    OIFFERENCE, WHICH IS DEFINED AS A1 - MIN(A1,A2)       (TABLE 3)H0650080
C*****                                                                  H0650090
C*****  S P E C I F I C A T I O N S  SEGMENT 065                        H0650100
C*****                                                                  H0012375
C*****  WHEN EXECUTING ONLY SEGMENT 065, REMOVE THE PRECEOING           H0012380
C*****  SPECIFICATIONS.  THIS SEGMENT HAS NO SPECIFICATION STATEMENTS.  H0012385
C*****                                                                  H0012390
C*****  I N P U T - O U T P U T  T A P E ASSIGNMENT STATEMENTS.         H0650110
      IRVI = 5                                                          H0072300
      NUVI = 6                                                          H0072305
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0072310
      WRITE(NUVI,0071)                                                  H0072315
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0072320
     1 42H  PREPARED BY NATIONAL BUREAU OF STANOAROS//                  H0072325
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0072330
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0072335
     5 23H  VERSION 3     PART 6 ///)                                   H0072340
C*****  3 OF 6 INPUT CARDS IOENTIFY THE USERS SYSTEM ANO COMPILER       H0072345
C       PREPAREO BY USER                                                H0072350
C       REAO, NO LIST                                                   H0072355
C       PREPAREO BY USER                                                H0072360
C       REAO, NO LIST                                                   H0072365
C       PREPAREO BY USER                                                H0072370
C       REAO, NO LIST                                                   H0072375
      REAO(IRVI,0070)                                                   H0072380
      REAO(IRVI,0072)                                                   H0072385
      REAO(IRVI,0073)                                                   H0072390
0070  FORMAT(40H    BASEO ON ASA FORTRAN X3.9-1966        /)            H0072395
0072  FORMAT(40H    TEST PROGRAMS                         /)            H0072400
0073  FORMAT(40H    FORTRAN COMPILER                      /)            H0072405
      WRITE(NUVI,0070)                                                  H0072410
      WRITE(NUVI,0072)                                                  H0072415
      WRITE(NUVI,0073)                                                  H0072420
      WRITE (NUVI,0650)                                                 H0650120
0650  FORMAT (1H1,1X,39HIFDIM - (065) INTRINSIC FUNCTIONS - DIM/12X,    H0650130
     130HANO IOIM (POSITIVE DIFFERENCE)/ 2X,14HASA REF. - 8.2/          H0650140
     2/2X,7HRESULTS)                                                    H0650150
C*****    HEAOER FOR SEGMENT 065 WRITTEN                                H0650160
C*****    TEST OF OIM - REAL ARGUMENTS, REAL FUNCTION          8.2/34H0650170
      CMAVS = -4.0                                                      H0650180
      CMBVS = 4.0                                                       H0650190
      CMCVS = 16.25                                                     H0650200
      CMOVS = -64.25                                                    H0650210
      CMEVS = OIM(CMAVS,CMBVS)                                          H0650220
      CMFVS = CMEVS + 0.0                                               H0650230
      WRITE (NUVI,0651) CMFVS                                           H0650240
      CMEVS = DIM(CMCVS,CMOVS)                                          H0650250
      CMFVS = CMEVS - 80.5                                              H0650260
      WRITE (NUVI,0651) CMFVS                                           H0650270
      CMEVS = OIM(CMCVS,CMBVS)                                          H0650280
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      CMFVS = CMEVS - 12.25                                              H0650290
      WRITE (NUVI,0651) CMFVS                                            H0650300
      CMEVS = DIM(CMDVS,CMAVS)                                           H0650310
      CMFVS = CMEVS - 0.0                                                H0650320
      WRITE (NUVI,0651) CMFVS                                            H0650330
C*****    TEST OF IDIM - INTEGER ARGUMENTS, INTEGER FUNCTION      8.2/35H0650340
      MCAVI = 02468                                                      H0650350
      MCBVI = +36                                                        H0650360
      MCCVI = -3                                                         H0650370
      MCDVI = -23                                                        H0650380
      MCEVI = IDIM(MCAVI,MCBVI)                                          H0650390
      MCFVI = MCEVI - 2432                                               H0650400
      WRITE (NUVI,0652) MCFVI                                            H0650410
      MCEVI = IDIM(MCBVI,MCCVI)                                          H0650420
      MCFVI = MCEVI - 39                                                 H0650430
      WRITE (NUVI,0652) MCFVI                                            H0650440
      MCEVI = IDIM(MCDVI,MCCVI)                                          H0650450
      MCFVI = MCEVI + 0                                                  H0650460
      WRITE (NUVI,0652) MCFVI                                            H0650470
      MCEVI = IDIM(MCCVI,MCCVI)                                          H0650480
      WRITE (NUVI,0652) MCEVI                                            H0650490
      MCEVI = IDIM(MCCVI,MCBVI)                                          H0650500
      WRITE (NUVI,0652) MCEVI                                            H0650510
      WRITE (NUVI,0653)                                                  H0650520
0651  FORMAT (1H0,F17.2)                                                 H0650530
0652  FORMAT (1H0,10X,I5)                                                H0650540
0653  FORMAT (1H0,1X,34H ALL ABOVE ANSWERS SHOULD BE 0 FOR/2X,           H0650550
     135HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                            H0650560
C*****    END OF TEST SEGMENT 065                                        H0650570
C*****  WHEN EXECUTING ONLY SEGMENT 065 THE STOP AND END CARDS           H0650580
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0650590
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0650600
C=    STOP                                                               H0650610
C=    END                                                                H0650620
C*************************************************************************H0660010
C*****                                                                   H0660020
C*****                          IFSGL - (066)                            H0660030
C*****                                                                   H0660040
C*************************************************************************H0660050
C*****  GENERAL PURPOSE                                        ASA REF  H0660060
C*****    TEST INTRINSIC FUNCTION SNGL - OBTAIN MOST SIGNIFICANT 8.2/36H0660070
C*****    PART OF DOUBLE PRECISION ARGUMENT.                  (TABLE 3)H0660080
C*****  GENERAL COMMENTS                                               H0660090
C*****    ASSIGNED GO TO STATEMENT ASSUMED WORKING.                    H0660100
C*****                                                                 H0660110
C*****  S P E C I F I C A T I O N S  SEGMENT 066                       H0660120
C*****                                                                 H0012395
C*****  WHEN EXECUTING ONLY SEGMENT 066, THE SPECIFICATION STATEMENTS  H0012400
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 H0012405
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0012410
C*****                                                                 H0012415
C=    DOUBLE PRECISION MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,            H0012420
C=   1                 CMAVD, CMBVD,CMCVD                            H0012425
C*****                                                                 H0012430
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0660130
C*****                                                                 H0072425
C*****  WHEN EXECUTING ONLY SEGMENT 066, THE FOLLOWING STATEMENT       H0072430
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0072435
C=    NUVI = 6                                                         H0072440
C*****                                                                 H0072445
      WRITE (NUVI, 0660)                                               H0660140
0660  FORMAT (1H1,1X,39HIFSGL - (066) INTRINSIC FUNCTION SNGL--/16X,   H0660150
     126HOBTAIN MOST SIGNIFICANT PT/16X,                               H0660160
     218H OF D.P. ARGUMENT. //2X,15HASA REFS. - 8.2//2X,7HRESULTS)     H0660170
C*****    HEADER FOR SEGMENT 066 WRITTEN                               H0660180
      MCAVD = .48748748748748D3+.57D-5+.5604645D-6+.31786509547D-7     H0660190
      MCBVD =-39.689539609539D1-.57D-5-.5604645D-6-.31786509547D-7     H0660200
      MCCVD = .33333333333333D0+.57D-5+.5604645D-6+.31786509547D-7     H0660210
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      MCDVD =-.66666666666666D0-.57D-5+.5604645D-6-.31786509547D-7       H0660220
      MCEVD = .48748748748748D3+.57D-5+.5604645D-6+.31786509547D-7       H0660230
      MCFVD = -39.689539609539D+1                                        H0660240
      AVS   = 0.0                                                        H0660250
      BVS   = 0.0                                                        H0660260
      CVS   = 0.0                                                        H0660270
      IVI   = 2                                                          H0660280
C*****  EXPRESSION RESULTS ASSIGNED TO D.P. RESULT FOR VISUAL COMPARISONH0660290
C*****  ARGUMENTS OF SNGL - VARIABLE, SIMPLE EXPRESSION                 H0660300
      CMAVD = AVS + SNGL(MCAVD) - BVS                                    H0660310
      WRITE (NUVI,661) MCAVD,CMAVD                                       H0660320
      CMAVD = CVS + SNGL(MCBVD) + AVS                                    H0660330
      WRITE (NUVI,661) MCBVD, CMAVD                                      H0660340
      CMAVD = SNGL(MCCVD)                                                H0660350
      WRITE (NUVI,661) MCCVD,CMAVD                                       H0660360
      CMBVD = -MCBVD                                                     H0660370
      CMAVD = -SNGL(MCBVD - CMBVD)                                       H0660380
      CMCVD = - (MCBVD + MCBVD)                                          H0660390
      WRITE (NUVI,661) CMCVD,CMAVD                                       H0660400
      CMCVD = MCDVD * MCDVD                                              H0660410
      CMAVD = BVS + SNGL(MCDVD**IVI) + CVS                               H0660420
      WRITE (NUVI,661) CMCVD, CMAVD                                      H0660430
C*****  ARGUMENT OF SNGL - INTRINSIC FUNCTION WITH DIFFERENT NO. OF ARG H0660440
      CMAVD = -(CVS + SNGL(DABS(MCDVD)) + BVS)                           H0660450
      WRITE (NUVI,661) MCDVD, CMAVD                                      H0660460
      CMAVD = AVS - BVS + SNGL(DMIN1(MCEVD,MCFVD))                       H0660470
      WRITE (NUVI,661) MCFVD, CMAVD                                      H0660480
      CMAVD = CVS + BVS + SNGL(DMAX1(MCCVD,MCEVD,MCFVD))                 H0660490
      WRITE (NUVI,661) MCEVD, CMAVD                                      H0660500
      WRITE (NUVI, 662)                                                  H0660510
661   FORMAT(1H0,1X,6HLINE A,D25.14/2X,6HLINE B,D25.14)                  H0660520
662   FORMAT(33H0 LINE B SHOULD AGREE WITH LINE A /40H  ONLY TO THE PRECH0660530
     AISION OF A REAL DATUM. /37H  REMAINING DIGITS RESULT FROM OUTPUT /H0660540
     B 33H  CONVERSION WHEN A REAL VALUE IS / 32H  ASSIGNED TO D.P. FOR H0660550
     CPRINTING. )                                                       H0660560
C*****    END OF SEGMENT 066                                           H0660570
C*****  WHEN EXECUTING ONLY SEGMENT 066, THE STOP AND END CARDS        H0660580
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C= IN COLUMNS     H0660590
C*****  1  AND  2  REMOVED.                                            H0660600
C=    STOP                                                             H0660610
C=    END                                                              H0660620
C*******************************************************************************H0670010
C*****                                                                 H0670020
C*****                          IFREL - (067)                          H0670030
C*****                                                                 H0670040
C*******************************************************************************H0670050
C*****  GENERAL PURPOSE                                        ASA REF H0670060
C*****    TEST INTRINSIC FUNCTION REAL (OBTAIN REAL PART OF      8.2/39H0670070
C*****    COMPLEX ARGUMENT ).                                 (TABLE 3)H0670080
C*****                                                                 H0670090
C*****  S P E C I F I C A T I O N S  SEGMENT 067                       H0670100
C*****                                                                 H0012435
C*****  WHEN EXECUTING ONLY SEGMENT 067, THE SPEC+F+CAT+ON STATEMENTS  H0012440
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 H0012445
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0012450
C*****                                                                 H0012455
C=    COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC                      H0012460
C*****                                                                 H0012465
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0670110
C*****                                                                 H0072450
C*****  WHEN EXECUTING ONLY SEGMENT 067, THE FOLLOWING STATEMENT       H0072455
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0072460
C=    NUVI = 6                                                         H0072465
C*****                                                                 H0072470
      WRITE (NUVI,0670)                                                H0670120
0670  FORMAT (1H1,1X,34HIFREL - (067) INTRINSIC FUNCTION--/ 16X, 4HREAL/H0670130
     1 2X,14HASA REF. - 8.2//                                          H0670140
     2 2X,7HRESULTS)                                                   H0670150
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C*****    HEADER FOR SEGMENT 067 WRITTEN                                H0670160
      CHAVC = (3.2,1.86)                                                 H0670170
      CHBVC = (2.1,0.0)                                                  H0670180
      CHCVC = (3.7,-1.2)                                                 H0670190
      CHDVC = (+45.1,+2.2)                                               H0670200
      CHEVC = (-16.0, 0.0)                                               H0670210
      CHFVC = (-32.0, -1.1)                                              H0670220
      CMAVS = REAL(CHAVC)                                                H0670230
      CMBVS = CMAVS - 3.2                                                H0670240
      CMAVS = REAL(CHBVC)                                                H0670250
      CMCVS = CMAVS - 2.1                                                H0670260
      CMAVS = REAL(CHCVC)                                                H0670270
      CMDVS = CMAVS - 3.7                                                H0670280
      CMAVS = REAL(CHDVC)                                                H0670290
      CMEVS = CMAVS - 45.1                                               H0670300
      CMAVS =  ABS(REAL(CHEVC) + REAL(CHFVC))                            H0670310
      CMFVS = CMAVS - 48.0                                               H0670320
      CMAVS = AMAX1(REAL(CHAVC),REAL(CHBVC), REAL(CHEVC-CHFVC))          H0670330
      CMGVS = CMAVS - 16.0                                               H0670340
      WRITE (NUVI,0671) CMBVS,CMCVS,CMDVS,CMEVS,CMFVS,CMGVS              H0670350
C*****    REAL CONSTANTS HAVING ONLY FRACTIONAL PARTS(NO EXPONENT)       H0670360
      CHAVC = (.789,.12)                                                 H0670370
      CHBVC = (.13,1.2)                                                  H0670380
      CHCVC = (.507,-2.2)                                                H0670390
      CHDVC = (+.5401,+.5)                                               H0670400
      CHEVC = (-.5,0.25)                                                 H0670410
      CHFVC = (-.0625, 1.1)                                              H0670420
      CMAVS = REAL(CHAVC)                                                H0670430
      CMBVS = CMAVS - .789                                               H0670440
      CMAVS = REAL(CHBVC)                                                H0670450
      CMCVS = CMAVS -0.13                                                H0670460
      CMAVS = REAL(CHCVC)                                                H0670470
      CMDVS = CMAVS -0.507                                               H0670480
      CMAVS = REAL(CHDVC)                                                H0670490
      CMEVS = CMAVS -0.5401                                              H0670500
      CMAVS = REAL(CHEVC+CHFVC)                                          H0670510
      CMFVS = CMAVS  + 0.5625                                            H0670520
      CMAVS = REAL(CHEVC) - REAL(CHFVC)                                  H0670530
      CMGVS = CMAVS + 0.4375                                             H0670540
      WRITE (NUVI,0671) CMBVS,CMCVS,CMDVS,CMEVS,CMFVS,CMGVS              H0670550
C*****    REAL CONSTANTS HAVING ONLY INTEGRAL PARTS(NO EXPONENT)         H0670560
C*****                                                  5.1.1.2/22H0670570
      CHAVC = (23.,0.1)                                                  H0670580
      CHBVC = (12.,+1.2)                                                 H0670590
      CHCVC = (1.,-2.3)                                                  H0670600
      CHDVC = (+45.,+.6)                                                 H0670610
      CHEVC = (19.0, 1.0)                                                H0670620
      CHFVC = (-32.0, 2.0)                                               H0670630
      CMAVS = REAL(CHAVC)                                                H0670640
      CMBVS = CMAVS - 23.0                                               H0670650
      CMAVS = REAL(CHBVC)                                                H0670660
      CMCVS = CMAVS - 12.0                                               H0670670
      CMAVS = REAL(CHCVC)                                                H0670680
      CMDVS = CMAVS - 1.0                                                H0670690
      CMAVS = REAL(CHDVC)                                                H0670700
      CMEVS = CMAVS - 45.0                                               H0670710
      CMAVS = SIGN(DIM(REAL(CHEVC),REAL(CHFVC)),REAL(CHFVC))             H0670720
      CMFVS = CMAVS + 51.0                                               H0670730
      CMAVS = REAL((16.0,1.0) + CHEVC + CHFVC)                           H0670740
      CMGVS = CMAVS - 3.0                                                H0670750
      WRITE (NUVI,0671) CMBVS,CMCVS,CMDVS,CMEVS,CMFVS,CMGVS              H0670760
      WRITE (NUVI,0672)                                                  H0670770
0671  FORMAT (/6(F20.4/))                                                H0670780
0672  FORMAT ( /40H  ALL ABOVE ANSWERS SHOULD BE 0 FOR THIS /            H0670790
     132H  TEST SEGMENT TO BE SUCCESSFUL.)                               H0670800
C*****    END OF TEST SEGMENT 067                                        H0670810
C*****  WHEN EXECUTING ONLY SEGMENT 067, THE  STOP  AND  END  CARDS      H0670820
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H0670830
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C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0670840
C=     STOP                                                              H0670850
C=     END                                                               H0670860
C*************************************************************************H0680010
C*****                                                                   H0680020
C*****                          IFIMG - (068)                            H0680030
C*****                                                                   H0680040
C*************************************************************************H0680050
C*****  GENERAL PURPOSE                                        ASA REF  H0680060
C*****    TEST INTRINSIC FUNCTION AIMAG (OBTAIN IMAGINARY PART    8.2/41H0680070
C*****    OF COMPLEX ARGUMENT )                                (TABLE 3)H0680080
C*****                                                                   H0680090
C*****  S P E C I F I C A T I O N S  SEGMENT 068                         H0680100
C*****                                                                   H0012470
C*****  WHEN EXECUTING ONLY SEGMENT 068, THE SPECIFICATION STATEMENTS    H0012475
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0012480
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0012485
C*****                                                                   H0012490
C=     COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC,CHGVC,CHHVC,CHIVC,    H0012495
C=    1CHJVC,CHKVC,CHLVC                                                H0012500
C*****                                                                   H0012505
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H0680110
C*****                                                                   H0072475
C*****  WHEN EXECUTING ONLY SEGMENT 068, THE FOLLOWING STATEMENT         H0072480
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           H0072485
C=     NUVI = 6                                                          H0072490
C*****                                                                   H0072495
       WRITE (NUVI,0680)                                                 H0680120
0680   FORMAT (1H1,1X,40HIFIMG - (068) INTRINSIC FUNCTION - AIMAG/16X,   H0680130
      119HOBTAIN IMAGINARY PT/16X,19HOF COMPLEX ARGUMENT/ 2X,            H0680140
      213HASA REF.- 8.2//2X,7HRESULTS)                                   H0680150
C*****    HEADER FOR SEGMENT 068 WRITTEN                                 H0680160
C*****    IMAGINARY PARTS OF COMPLEX NUMBERS HAVING BOTH INTEGRAL        H0680170
C*****    AND FRACTIONAL PARTS. (NO EXPONENT)                            H0680180
       CHAVC = (3.2,1.86)                                                H0680190
       CHBVC = (2.1,0.0)                                                 H0680200
       CHCVC = (37.0,-1.2)                                               H0680210
       CHDVC = (+45.1,+2.2)                                              H0680220
       CMAVS = AIMAG(CHAVC)                                              H0680230
       CMBVS = CMAVS - 1.86                                              H0680240
       CMAVS = AIMAG(CHBVC)                                              H0680250
       CMCVS = CMAVS - 0.0                                               H0680260
       CMAVS = AIMAG(CHCVC)                                              H0680270
       CMDVS = CMAVS + 1.2                                               H0680280
       CMAVS = AIMAG(CHDVC)                                              H0680290
       CMEVS = CMAVS -2.2                                                H0680300
       WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                         H0680310
C*****    IMAGINARY PARTS OF COMPLEX NUMBERS HAVING ONLY FRACTIONAL      H0680320
C*****    PARTS (NO EXPONENT)                                            H0680330
       CHAVC = (.789,.00)                                                H0680340
       CHBVC = (1.2,.789)                                                H0680350
       CHCVC = (+4.56,-.456)                                             H0680360
       CHDVC = (-12.3,+.001)                                             H0680370
       CMAVS = AIMAG(CHAVC)                                              H0680380
       CMBVS = CMAVS - 0.0                                               H0680390
       CMAVS = AIMAG(CHBVC)                                              H0680400
       CMCVS = CMAVS - .789                                              H0680410
       CMAVS = AIMAG(CHCVC)                                              H0680420
       CMDVS = CMAVS + .456                                              H0680430
       CMAVS = AIMAG(CHDVC)                                              H0680440
       CMEVS = CMAVS - 0.001                                             H0680450
       WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                         H0680460
C*****    IMAGINARY PARTS OF COMPLEX NUMBERS HAVING ONLY INTEGRAL        H0680470
C*****    PARTS (NO EXPONENT)                                            H0680480
       CHAVC =(-12.,12.)                                                 H0680490
       CHBVC = (+1.23,0.)                                                H0680500
       CHCVC = (0.0, -16.0)                                              H0680510
       CHDVC = (-1.1, -32.0)                                             H0680520
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      CMAVS = AIMAG(CHAVC)                                              H0680530
      CMBVS = CMAVS - 12.0                                              H0680540
      CMAVS = AIMAG(CHBVC)                                              H0680550
      CMCVS = CMAVS + 0.0                                               H0680560
      CMAVS = ABS(AIMAG(CHCVC)+AIMAG(CHDVC))                            H0680570
      CMDVS = CMAVS - 48.0                                              H0680580
      CMAVS = AMAX1(AIMAG(CHAVC), AIMAG(CHBVC), AIMAG(CHCVC-CHDVC))     H0680590
      CMEVS = CMAVS - 16.0                                              H0680600
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                         H0680610
C*****    IMAGINARY PARTS OF COMPLEX NUMBERS HAVING A DECIMAL EXPONENT. H0680620
      CHAVC = (2.3E0,1.2E0)                                             H0680630
      CHBVC = (1.2,.56E2)                                               H0680640
      CHCVC = (.24,1.E1)                                                H0680650
      CHDVC = (1.,+7.8E+1)                                              H0680660
      CHEVC = (1.5, 16.0)                                               H0680670
      CHFVC = (1.0, -32.0)                                              H0680680
      CHGVC = (1.E0,-7.99E-1)                                           H0680690
      CHHVC = (27.00,.55E-1)                                            H0680700
      CHIVC = (1.E0,2.E-0)                                              H0680710
      CHJVC = (1.2,1.E+1)                                               H0680720
      CHKVC = (1.E-1,+7.E0)                                             H0680730
      CHLVC = (1.7,-99.E-1)                                             H0680740
      CMAVS = AIMAG(CHAVC)                                              H0680750
      CMBVS = CMAVS - 1.2E0                                             H0680760
      CMAVS = AIMAG(CHBVC)                                              H0680770
      CMCVS = CMAVS - .56E2                                             H0680780
      CMAVS = AIMAG(CHCVC)                                              H0680790
      CMDVS = CMAVS - 1.E1                                              H0680800
      CMAVS = AIMAG(CHDVC)                                              H0680810
      CMEVS = CMAVS - 7.8E+1                                            H0680820
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                         H0680830
      CMAVS = SIGN(DIM(AIMAG(CHEVC),AIMAG(CHFVC)), AIMAG(CHFVC))        H0680840
      CMBVS = CMAVS + 48.0                                              H0680850
      CMAVS = AIMAG((1.0, 16.0) + CHEVC + CHFVC)                        H0680860
      CMCVS = CMAVS + 0.0                                               H0680870
      CMAVS = AIMAG(CHGVC)                                              H0680880
      CMDVS = CMAVS + 7.99E-1                                           H0680890
      CMAVS = AIMAG(CHHVC)                                              H0680900
      CMEVS = CMAVS - .55E-1                                            H0680910
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                         H0680920
      CMAVS = AIMAG(CHIVC)                                              H0680930
      CMBVS = CMAVS - 2.E-0                                             H0680940
      CMAVS = AIMAG(CHJVC)                                              H0680950
      CMCVS = CMAVS - 1.E+1                                             H0680960
      CMAVS = AIMAG(CHKVC)                                              H0680970
      CMDVS = CMAVS - 7.E0                                              H0680980
      CMAVS = AIMAG(CHLVC)                                              H0680990
      CMEVS = CMAVS + 99.E-1                                            H0681000
      WRITE (NUVI,0681) CMBVS,CMCVS,CMDVS,CMEVS                         H0681010
      WRITE (NUVI,0682)                                                 H0681020
0681  FORMAT ( / 4(F20.5 / ))                                           H0681030
0682  FORMAT ( /40H  ALL ABOVE ANSWERS SHOULD BE 0 FOR THIS /           H0681040
     132H  TEST SEGMENT TO BE SUCCESSFUL.)                              H0681050
C*****    END OF TEST SEGMENT 068                                       H0681060
C*****  WHEN EXECUTING ONLY SEGMENT 068, THE  STOP  AND  END  CARDS     H0681070
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0681080
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0681090
C=    STOP                                                              H0681100
C=    END                                                               H0681110
C*************************************************************************H0690010
C*****                                                                  H0690020
C*****                          IFDBL - (069)                           H0690030
C*****                                                                  H0690040
C*************************************************************************H0690050
C*****  GENERAL PURPOSE                                    ASA REF H0690060
C*****    TEST INTRINSIC FUNCTION DBLE (EXPRESS S.P. ARGUMENT  8.2/43H0690070
C*****    IN DOUBLE PRECISION FORM )                      (TABLE 3)H0690080
C*****    INTRINSIC FUNCTIONS DABS,DSIGN,DMIN1,DMAX1,AMAX1            H0690090
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C*****    ASSUMED WORKING.                                                H0690100
C*****                                                                    H0690110
C*****  S P E C I F I C A T I O N S  SEGMENT 069                          H0690120
C*****                                                                    H0012510
C*****  WHEN EXECUTING ONLY SEGMENT 069, THE SPECIFICATION STATEMENTS     H0012515
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    H0012520
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0012525
C*****                                                                    H0012530
C=     DOUBLE PRECISION  MCAVD,MCBVD,MCCVD,MCDVD,MCEVD,MCFVD,MCGVD       H0012535
C*****                                                                    H0012540
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H0690130
C*****                                                                    H0072500
C*****  WHEN EXECUTING ONLY SEGMENT 069, THE FOLLOWING STATEMENT          H0072505
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            H0072510
C=     NUVI = 6                                                          H0072515
C*****                                                                    H0072520
       WRITE (NUVI,0690)                                                 H0690140
0690   FORMAT (1H1,1X,39HIFDBL - (069) INTRINSIC FUNCTION - DBLE/16X,    H0690150
      126HS.P. ARGUMENT IN D.P. FORM / 2X,13HASA REF.- 8.2//2X,7HRESULTS)H0690160
C*****    HEADER FOR SEGMENT 069 WRITTEN                                  H0690170
       CMAVS = 0.9765625E-3                                              H0690180
       CMBVS = -.1953125E-2                                              H0690190
       CMCVS = .5859375E-2                                               H0690200
       CMDVS = -.1048576E+7                                              H0690210
       CMEVS = +114688.0                                                 H0690220
       MCAVD = 0.0D0                                                     H0690230
       MCBVD = MCAVD * DBLE(CMAVS)                                       H0690240
       MCCVD = DMIN1(DBLE(CMAVS),DBLE(CMEVS))                            H0690250
       MCDVD = MCAVD * MCBVD - DABS(DBLE(CMBVS))                         H0690260
       MCEVD = MCAVD - DSIGN(DBLE(CMCVS),DBLE(CMBVS))                    H0690270
       MCFVD = - DABS(DBLE(CMDVS)) + MCAVD                               H0690280
       MCGVD = DMAX1(DBLE(AMAX1(CMDVS,CMEVS)),MCBVD)                     H0690290
       WRITE(NUVI,691) CMAVS, MCCVD, CMBVS, MCDVD,                       H0690300
      1                CMCVS, MCEVD, CMDVS, MCFVD, CMEVS, MCGVD         H0690310
691    FORMAT(1H0,1X,6HLINE A, E18.7/ 8H  LINE B, D25.14)                H0690320
       WRITE(NUVI, 692)                                                  H0690330
692    FORMAT(1H0,38H A COMPARISON OF LINE A AGAINST LINE B /1X,         H0690340
      1 40H IS NEEDED TO CHECK THE VALIDITY OF TEST)                     H0690350
C*****    END OF TEST SEGMENT 069                                         H0690360
C*****  WHEN EXECUTING ONLY SEGMENT 069, THE STOP AND END CARDS           H0690370
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                   H0690380
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0690390
C=     STOP                                                              H0690400
C=     END                                                               H0690410
C*******************************************************************************H0700010
C*****                                                                    H0700020
C*****                          IFCPX - (070)                             H0700030
C*****                                                                    H0700040
C*******************************************************************************H0700050
C*****  GENERAL PURPOSE                                          ASA REF H0700060
C*****    TEST INTRINSIC FUNCTION CMPLX (EXPRESS TWO REAL          8.2/45H0700070
C*****    ARGUMENTS IN COMPLEX FORM)                             (TABLE 3)H0700080
C*****  GENERAL COMMENTS                                                  H0700090
C*****    SUBTRACTION OF COMPLEX NUMBERS ASSUMED WORKING                  H0700100
C*****                                                                    H0700110
C*****  S P E C I F I C A T I O N S  SEGMENT 070                          H0700120
C*****                                                                    H0012545
C*****  WHEN EXECUTING ONLY SEGMENT 070, THE SPECIFICATION STATEMENTS     H0012550
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    H0012555
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0012560
C*****                                                                    H0012565
C=     COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC,CHGVC                 H0012570
C*****                                                                    H0012575
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H0700130
C*****  WHEN EXECUTING ONLY SEGMENT 070, THE FOLLOWING STATEMENT          H0072525
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            H0072530
C=     NUVI = 6                                                          H0072535
       WRITE (NUVI,0700)                                                 H0700140
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0700  FORMAT (1H1, 1X,40HIFCPX - (070) INTRINSIC FUNCTION - CMPLX/16X,  H0700150
     126HEXPRESS TWO REAL ARGUMENTS/16X,15HIN COMPLEX FORM/15H  ASA REF.H0700160
     2- 8.2//2X,7HRESULTS)                                             H0700170
C*****    HEADER FOR SEGMENT 070 WRITTEN                               H0700180
      CMAVS = 23.123                                                   H0700190
      CMBVS = -.78                                                     H0700200
      CMCVS = +17.                                                     H0700210
      CMDVS = 157.E-1                                                  H0700220
      CMEVS = -.985E1                                                  H0700230
      CMFVS = +88.E+0                                                  H0700240
      CHAVC = CMPLX(CMAVS,CMBVS)                                       H0700250
      CHBVC = CHAVC - (23.123,-.78)                                    H0700260
      CHAVC = CMPLX(CMBVS,15.0)                                        H0700270
      CHCVC = CHAVC - (-.78,15.0)                                      H0700280
      CHAVC = CMPLX(CMDVS,CMFVS)                                       H0700290
      CHDVC = CHAVC - (157.E-1,+88.E+0)                                H0700300
      CHAVC =  CMPLX(0.0,0.E0)                                         H0700310
      CHEVC = CHAVC                                                    H0700320
      CHAVC = CMPLX(CMEVS,CMFVS)                                       H0700330
      CHFVC = CHAVC - (-.985E1,+88.E+0)                                H0700340
      CHAVC = CMPLX(CMCVS,-0.0E-1)                                     H0700350
      CHGVC = CHAVC - (+17.0,0.0)                                      H0700360
      WRITE (NUVI,0702) CHBVC, CHCVC, CHDVC, CHEVC, CHFVC, CHGVC       H0700370
      WRITE (NUVI,0701)                                                H0700380
0701  FORMAT   (//2X,37HTHE ABOVE ANSWERS SHOULD ALL BE 0 FOR/1X,      H0700390
     136H THIS TEST SEGMENT TO BE SUCCESSFUL.)                         H0700400
0702  FORMAT (6(/F17.7,F17.7))                                         H0700410
C*****    END OF TEST SEGMENT 070                                      H0700420
C*****  WHEN EXECUTING ONLY SEGMENT 070, THE  STOP  AND  END  CARDS    H0700430
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H0700440
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0700450
C=    STOP                                                             H0700460
C=    END                                                              H0700470
C*************************************************************************H0710010
C*****                                                                H0710020
C*****                          IFCJG - (071)                         H0710030
C*****                                                                H0710040
C*************************************************************************H0710050
C*****  GENERAL PURPOSE                                      ASA REF H0710060
C*****    TEST INTRINSIC FUNCTION CONJG (OBTAIN CONJUGATE OF A    8.2/47H0710070
C*****    COMPLEX ARGUMENT)                                  (TABLE 3)H0710080
C*****  GENERAL COMMENTS                                              H0710090
C*****    SUBTRACTION OF COMPLEX NUMBERS ASSUMED WORKING              H0710100
C*****                                                                H0710110
C*****  S P E C I F I C A T I O N S  SEGMENT 071                      H0710120
C*****                                                                H0012580
C*****  WHEN EXECUTING ONLY SEGMENT 071, THE SPECIFICATION STATEMENTS  H0012585
C*****  IN COLUMNS  1  AND  2  REMOVED.                               H0012590
C*****                                                                H0012595
C=    COMPLEX  CHAVC, CHBVC, CHCVC, CHDVC ,CHEVC                      H0012600
C*****                                                                H0012605
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0710130
C*****                                                                H0072540
C*****  WHEN EXECUTING ONLY SEGMENT 071, THE FOLLOWING STATEMENT      H0072545
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.        H0072550
C=    NUVI = 6                                                        H0072555
C*****                                                                H0072560
      WRITE (NUVI,0710)                                               H0710140
0710  FORMAT (1H1, 1X,40HIFCJG - (071) INTRINSIC FUNCTION - CONJG/16X,  H0710150
     119HOBTAIN CONJUGATE OF/16X,16HA COMPLEX NUMBER/                 H0710160
     217H  ASA REFS. - 8.2//2X,7HRESULTS)                             H0710170
C*****    HEADER FOR SEGMENT 071 WRITTEN                               H0710180
      CHAVC = (1.1,+2.1)                                              H0710190
      CHBVC = CONJG(CHAVC)                                            H0710200
      CHCVC = CHBVC - (1.1,-2.1)                                      H0710210
      CHEVC = (-2.E0, -3.E-1)                                         H0710220
      CHBVC = CONJG(CHEVC)                                            H0710230
      CHDVC = CHBVC - (-2.E0,3.E-1)                                   H0710240
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      WRITE (NUVI,0711) CHCVC, CHDVC                                    H0710250
      CHAVC = (-.2,+.3)                                                 H0710260
      CHBVC = CONJG(CHAVC)                                              H0710270
      CHCVC = CHBVC - (-.2,-.3)                                         H0710280
      CHAVC = (23.1E-1,1.E-2)                                           H0710290
      CHBVC = CONJG(CHAVC)                                              H0710300
      CHDVC = CHBVC - (23.1E-1,-1.E-2)                                  H0710310
      WRITE (NUVI,0711) CHCVC,CHOVC                                     H0710320
      CHBVC = CONJG((1.2,2.2))                                          H0710330
      CHCVC = CHBVC - (1.2,-2.2)                                        H0710340
      CHBVC = CONJG((-1.0,2.0E-1))                                      H0710350
      CHOVC = CHBVC - (-1.0,-2.0E-1)                                    H0710360
      WRITE (NUVI,0711) CHCVC, CHDVC                                    H0710370
      CHBVC = CONJG((.1,.2E0))                                          H0710380
      CHCVC = CHBVC - (.1,-.2E0)                                        H0710390
      CHOVC = CONJG((.0,-0.E0))                                         H0710400
      WRITE (NUVI,0711) CHCVC, CHOVC                                    H0710410
      WRITE (NUVI,0712)                                                 H0710420
0711  FORMAT (4(/  F17.7, F10.7))                                       H0710430
0712  FORMAT (//38H  ALL ABOVE ANSWERS MUST BE 0 FOR THIS/1X,           H0710440
     131H TEST SEGMENT TO BE SUCCESSFUL.)                               H0710450
C*****     END OF TEST SEGMENT 071                                      H0710460
C*****  WHEN EXECUTING ONLY SEGMENT 071, THE  STOP  AND  END  CARDS     H0710470
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0710480
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0710490
C=     STOP                                                            H0710500
C=     END                                                             H0710510
C*******************************************************************************H0720010
C*****                                                                 H0720020
C*****                          IFBMS - (072)                          H0720030
C*****                                                                 H0720040
C*******************************************************************************H0720050
C*****  GENERAL PURPOSE                                          ASA REF H0720060
C*****     TEST THAT ALL INTRINSIC FUNCTIONS WOULD ACCEPT          8.2/32H0720070
C*****     ANY EXPRESSION OF THE TYPE SPECIFIED IN THE          (TABLE 3)H0720080
C*****     INTRINSIC FUNCTION TABLE - ASA REFS - 8.2/01-47              H0720090
C*****  GENERAL COMMENTS                                                H0720100
C*****     SEGMENTS 055 TO 071 ASSUMED WORKING                          H0720110
C*****                                                                  H0720120
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0720130
C*****                                                                  H0720140
C*****  WHEN EXECUTING ONLY SEGMENT 072, THE FOLLOWING STATEMENT        H0072565
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          H0072570
C=     NUVI = 6                                                        H0072575
C*****                                                                 H0072580
      WRITE (NUVI,0720)                                                H0720150
0720  FORMAT (1H1,1X,37HIFBMS - (072) BASIC FORTRAN INTRINSIC/10X,     H0720160
     128HFUNCTIONS ACCEPT EXPRESSIONS/10X,30HOF TYPE SPECIFIED IN I.F.TAH0720170
     2BLE//15H  ASA REF.- 8.2//2X,7HRESULTS)                          H0720180
C*****     HEADER FOR SEGMENT 072 WRITTEN                               H0720190
C*****     TEST ABS - ABSOLUTE VALUE OF REAL ARGUMENT           8.2/11H0720200
      CMAVS = 0.5                                                      H0720210
      CMBVS = -.25                                                     H0720220
      CMCVS = 16.0                                                     H0720230
      CMDVS = -4.0                                                     H0720240
      CMEVS = ABS(CMAVS + CMBVS) + 1.0                                 H0720250
      CMFVS = CMEVS - (0.5 - .25) - 1.0                                H0720260
      CMEVS = ABS(0.0 -ABS(CMAVS - CMCVS+ CMDVS))                      H0720270
      CMGVS = CMEVS + (0.5 - 16.0 - 4.0)                               H0720280
      CMEVS = ABS(CMAVS + 1.0 - (CMCVS + CMDVS) + 0.5 * 8.0)           H0720290
      CMHVS = CMEVS + (0.5 + 1.0 - (16.0 - 4.0) + 4.0)                 H0720300
      CMEVS = ABS(1.0E0 + (1.0 * 1.0 / 1.0) **2)                       H0720310
      CMIVS = CMEVS - 2.0                                              H0720320
      WRITE (NUVI,0721) CMFVS , CMGVS , CMHVS , CMIVS                  H0720330
C*****     TEST OF IABS - ABSOLUTE VALUE OF INTEGER ARGUMENT    8.2/12H0720340
      MCAVI = 2                                                        H0720350
      MCBVI = 10                                                       H0720360
      MCCVI = IABS (MCAVI + MCBVI)                                     H0720370
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      MCDVI = MCCVI - 12                                                H0720380
      MCCVI = IABS(MCAVI * 2 + MCBVI / 2) +1                            H0720390
      MCEVI = MCCVI - 10                                                H0720400
      MCCVI = IABS(-MCBVI /(-2) - MCBVI ** 1 + (1 * 2 * 3 / 2 - 3) - 10 H0720410
     1 + 10 + MCBVI / MCAVI - 5)                                        H0720420
      MCFVI = MCCVI - 5                                                 H0720430
      MCCVI = IABS(0 - IABS(-5 * 1 / 5  - 5 * IABS(-1)))                H0720440
      MCGVI = MCCVI - 6                                                 H0720450
      WRITE (NUVI, 0722) MCDVI , MCEVI , MCFVI , MCGVI                  H0720460
C*****    TEST OF FLOAT - CONVERSION FROM INTEGER TO REAL          8.2/29H0720470
      CMEVS = FLOAT (MCAVI + MCBVI)                                     H0720480
      CMFVS = CMEVS - 12.0                                              H0720490
      CMEVS = FLOAT(MCAVI * 2 /4 + MCBVI ** 1)                          H0720500
      CMGVS = CMEVS - 11.0                                              H0720510
      CMEVS = FLOAT((23 + 46)/69 + 10 - MCBVI) *2.0 + 1.5               H0720520
      CMHVS = CMEVS - 3.5                                               H0720530
      CMEVS = (76.5 * 1.0 - FLOAT (76 * 1)) * 4.0                       H0720540
      CMIVS = CMEVS - 2.0                                               H0720550
      WRITE (NUVI,0723) CMFVS, CMGVS, CMHVS, CMIVS                      H0720560
C*****    TEST OF IFIX - CONVERSION FROM REAL TO INTEGER           8.2/30H0720570
      MCCVI = IFIX(CMAVS - CMBVS)                                       H0720580
      MCDVI = MCCVI                                                     H0720590
      MCCVI = IFIX(CMAVS *1.0 + CMBVS/CMBVS - (CMCVS - CMDVS))          H0720600
      MCEVI = MCCVI + 18                                                H0720610
      MCCVI = 1 + IFIX(2.5 * 2.0) - IFIX(10.0 /2.0)                     H0720620
      MCFVI = MCCVI - 1                                                 H0720630
      MCCVI = 2 + IFIX(2.5 ** 1.0 + (10.65 + 3.45))                     H0720640
      MCGVI = MCCVI - 18                                                H0720650
      WRITE (NUVI,0724) MCDVI, MCEVI, MCFVI, MCGVI                      H0720660
C*****    TEST OF SIGN - TRANSFER OF SIGN WITH REAL ARGUMENTS      8.2/31H0720670
      CMEVS = SIGN(CMAVS+CMDVS,CMDVS-CMBVS)                             H0720680
      CMFVS = CMEVS - (CMAVS + CMDVS)                                   H0720690
      CMEVS = SIGN(25.0 + 0.0 * 4.0,-24.4/6.1 * 1.0)                    H0720700
      CMGVS = CMEVS + 25.0                                              H0720710
      CMEVS = SIGN(10.5,SIGN(2.0,-4.5))                                 H0720720
      CMHVS = CMEVS + 10.5                                              H0720730
      CMEVS = SIGN(1.0,SIGN(-2.0,SIGN(2.0,-1.0)))                       H0720740
      CMIVS = CMEVS + 1.0                                               H0720750
      WRITE (NUVI,0725) CMFVS, CMGVS, CMHVS, CMIVS                      H0720760
C*****    TEST OF ISIGN - TRANSFER OF SIGN WITH INTEGER ARGUMENT   8.2/32H0720770
      MCCVI = ISIGN(MCAVI,MCAVI + MCBVI - 13)                           H0720780
      MCDVI = MCCVI + 2                                                 H0720790
      MCCVI = ISIGN(10,-5 - 10/2 + 1**2)                                H0720800
      MCEVI = MCCVI + 10                                                H0720810
      MCCVI = ISIGN( 1 + 2 + 3 , ISIGN(-2,7 + 5))                       H0720820
      MCFVI = MCCVI - 6                                                 H0720830
      MCCVI = ISIGN(1,ISIGN(-1,ISIGN(+1,-1)))                           H0720840
      MCGVI = MCCVI + 1                                                 H0720850
      WRITE (NUVI,0726) MCDVI, MCEVI, MCFVI, MCGVI                      H0720860
C*****    TEST OF COMBINATION OF ABS,IABS,FLOAT,IFIX,SIGN,ISIGN         H0720870
      CMEVS = FLOAT(IABS(IFIX(ABS(-5.0 + SIGN(-1.0,2.0)))))             H0720880
      CMFVS = CMEVS - 4.0                                               H0720890
      MCCVI = IFIX(FLOAT(ISIGN(1+2,IABS(1 + ISIGN(1,-1)))))             H0720900
      MCDVI = MCCVI - 3                                                 H0720910
      CMEVS = SIGN(ABS(1.0 + FLOAT(-20)), FLOAT(IFIX(1.0)))             H0720920
      CMGVS = CMEVS - 19.0                                              H0720930
      MCCVI = ISIGN(IABS(IFIX(1.0) - 2) , -((1 + IFIX(-1.0)) +1))       H0720940
      MCEVI = MCCVI + 1                                                 H0720950
      WRITE (NUVI,0727) CMFVS, CMGVS, MCDVI, MCEVI                      H0720960
      CMEVS = ABS(SIGN(1.0 + 2.0, FLOAT(IABS(-2))))                     H0720970
      CMFVS = CMEVS - 3.0                                               H0720980
      MCCVI = IABS(IFIX(SIGN(-2.0,2.0)))                                H0720990
      MCDVI = MCCVI - 2                                                 H0721000
      CMEVS = 1.2 + FLOAT(1 + 5 - ISIGN(-1,6))                          H0721010
      CMGVS = CMEVS - 6.2                                               H0721020
      MCCVI = 25 - ISIGN(IFIX(2.0),-IABS(-5))                           H0721030
      MCEVI = MCCVI - 27                                                H0721040
      WRITE (NUVI,0728) CMFVS, CMGVS, MCDVI, MCEVI                      H0721050
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C*****    END OF TEST STATEMENTS                                        H0721060
0721  FORMAT ( / 30H  TEST OF ABS IN EXPRESSIONS -/ 4(F17.1/))          H0721070
0722  FORMAT (   31H  TEST OF IABS IN EXPRESSIONS -/ 4(I15/))           H0721080
0723  FORMAT (   32H  TEST OF FLOAT IN EXPRESSIONS -/ 4(F17.1/))        H0721090
0724  FORMAT (   31H  TEST OF IFIX IN EXPRESSIONS -/ 4(I15/))           H0721100
0725  FORMAT (   31H  TEST OF SIGN IN EXPRESSIONS -/ 4(F17.1/))        H0721110
0726  FORMAT (   32H  TEST OF ISIGN IN EXPRESSIONS -/ 4(I15/))          H0721120
0727  FORMAT (   40H  COMBINATION OF ALL INTRINSIC FUNCTIONS,           H0721130
     1  2(/F17.1), 2(/I15))                                            H0721140
0728  FORMAT (  2(F17.1/),2(I15/)/ 35H  ALL ABOVE ANSWERS SHOULD BE 0 FOH0721150
     1R/2X,35HTHIS TEST SEGMENT TO BE SUCCESSFUL.)                      H0721160
C*****    END OF TEST SEGMENT 072                                       H0721170
C*****  WHEN EXECUTING ONLY SEGMENT 072, THE  STOP  AND  END  CARDS     H0721180
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0721190
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0721200
C=    STOP                                                             H0721210
C=    END                                                              H0721220
C*******************************************************************************H0730010
C*****                                                                 H0730020
C*****                          IFFMS - (073)                          H0730030
C*****                                                                 H0730040
C*******************************************************************************H0730050
C*****  GENERAL PURPOSE                                          ASA REF H0730060
C*****    TEST THAT ALL INTRINSIC FUNCTIONS IN FORTRAN WOULD      8.2/07H0730070
C*****    ACCEPT ANY EXPRESSION OF THE TYPE SPECIFIED IN THE     (PG 24)H0730080
C*****    INTRINSIC FUNCTION TABLE - ASA REFS - 8.2/TABLE 3              H0730090
C*****    SEGMENTS 055 - 071 ASSUMED WORKING.                            H0730100
C*****                                                                   H0730110
C*****  S P E C I F I C A T I O N S  SEGMENT 073                         H0730120
C*****                                                                   H0012610
C*****  WHEN EXECUTING ONLY SEGMENT 073, THE SPECIFICATION STATEMENTS    H0012615
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0012620
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0012625
C*****                                                                   H0012630
C=    DIMENSION MCA1I(5),AC2S(5,6)                                       H0012635
C=    INTEGER MCA3I(2,3,3)                                               H0012640
C=    DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPGVD,        H0012645
C=   1DPA1D(5),FC2D(5,5)                                                 H0012650
C*****                                                                   H0012655
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0730130
C*****                                                                   H0072585
C*****  WHEN EXECUTING ONLY SEGMENT 073, THE FOLLOWING STATEMENT         H0072590
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           H0072595
C=    NUVI = 6                                                           H0072600
C*****                                                                   H0072605
      WRITE (NUVI,0730)                                                  H0730140
0730  FORMAT (1H1,1X,41HIFFMS - (073) FORTRAN INTRINSIC FUNCTIONS/16X,   H0730150
     126HACCEPT EXPRESSIONS OF TYPE/16X,22HSPECIFIED IN I.F.TABLE/       H0730160
     223H  ASA REF.- 8.2/TABLE 3//2X,7HRESULTS)                          H0730170
C*****    HEADER FOR SEGMENT 073 WRITTEN                                 H0730180
C*****    TEST OF DABS IN EXPRESSIONS                             8.2/13H0730190
      DPAVD = 1.25D0                                                     H0730200
      DPBVD = - 10.0D0                                                   H0730210
      DPCVD = DABS(DPAVD + DPBVD)                                        H0730220
      DPDVD = DPCVD - 10.0D0 + 1.25D0                                    H0730230
      DPCVD = DABS(1.0D0 + 2.D0 - 3.0D0 * 50.D-1)                        H0730240
      DPEVD = DPCVD - 12.D0                                              H0730250
      DPCVD = DABS( DPAVD * 1.D0 - 1.25D0 + DPBVD/2.D0) + 1.D0           H0730260
      DPFVD = DPCVD - 6.0D0                                              H0730270
      DPGVD = 1.0D0 + DABS(2.5D0 - 1.5D0 * 1.0D0) - 2.D0                 H0730280
      WRITE (NUVI,0731) DPDVD, DPEVD, DPFVD, DPGVD                       H0730290
C*****    TEST OF AINT IN EXPRESSIONS                             8.2/14H0730300
      CMAVS = 1.23                                                       H0730310
      CMBVS = 27.998                                                     H0730320
      CMCVS = -9.007E0                                                   H0730330
      CMDVS = AINT(CMAVS + CMBVS - CMCVS)                                H0730340
      CMEVS = CMDVS - 38.0                                               H0730350
      CMDVS = AINT(1.0 + 2.0 /1.0 - 3.0 * 2.E0)                          H0730360
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      CMFVS = CMDVS + 3.0                                                H0730370
      CMDVS = AINT(4. + AINT(2.E0 + CMCVS))                              H0730380
      CMGVS = CMDVS + 3.0                                                H0730390
      CMDVS = AINT(AINT(AINT( 1.4 - 2.7)))                               H0730400
      CMHVS = CMDVS + 1.0                                                H0730410
      WRITE (NUVI,0732) CMEVS, CMFVS, CMGVS, CMHVS                       H0730420
C*****    TEST OF INT IN EXPRESSIONS                          8.2/15H0730430
      MCAVI = INT(1.0 + 2.1 + 3.2 - 8.4 / 2.5 * 2.6)                     H0730440
      MCBVI = MCAVI + 2                                                  H0730450
      MCAVI = INT(100.0/6.0 - (2.0 **4.0) + (((2.0-3.0)+4.0) * 2.0))     H0730460
      MCCVI = MCAVI - 6                                                  H0730470
      MCAVI = INT((100.2/6.1/5.0+4.10) / 2.0)                            H0730480
      MCDVI = MCAVI - 3                                                  H0730490
      MCAVI = INT(9.0/2.0) + INT(5.1/4.0)                                H0730500
      MCEVI = MCAVI - 5                                                  H0730510
      WRITE (NUVI,0733) MCBVI, MCCVI, MCDVI, MCEVI                       H0730520
C*****    TEST OF IDINT IN EXPRESSIONS                        8.2/16H0730530
      DPA1D(1) = 2.5D1                                                   H0730540
      MCAVI = IDINT(DPBVD / 2.0D0 + 1.5D0)                               H0730550
      MCBVI = MCAVI + 3                                                  H0730560
      MCAVI = IDINT( 1.0D1 + 5.D0 * 2.D1 / 49.D1) + 1                    H0730570
      MCCVI = MCAVI - 11                                                 H0730580
      MCAVI = IDINT(DPA1D(1))                                            H0730590
      MCDVI = MCAVI - 25                                                 H0730600
      MCAVI = IDINT(DPA1D(1) + DPA1D(1)/4.0D0)                           H0730610
      MCEVI = MCAVI - 31                                                 H0730620
      WRITE (NUVI,0734) MCBVI, MCCVI, MCDVI, MCEVI                       H0730630
C*****    TEST OF AMOD, MOD IN EXPRESSIONS                  8.2/17-18H0730640
      AC2S(1,1) = 27.0                                                   H0730650
      CMDVS =AMOD(25.0 + AC2S(1,1), 1.0 * 5.0)                           H0730660
      CMEVS = CMDVS - 2.0                                                H0730670
      CMDVS =AMOD(99.0,AMOD(25.0+ 27.0, 5.0))                            H0730680
      CMFVS = CMDVS - 1.0                                                H0730690
      MCA3I(1,2,3) = 5                                                   H0730700
      MCAVI = MOD(98 + 1, MOD(25 + 27,5))                                H0730710
      MCBVI = MCAVI - 1                                                  H0730720
      MCAVI = MOD (MCA3I (1,2,3), 2)                                     H0730730
      MCCVI = MCAVI - 1                                                  H0730740
      WRITE (NUVI,0735) CMEVS, CMFVS, MCBVI, MCCVI                       H0730750
C*****    TEST OF AMAX0, AMAX1, MAX0, MAX1 AND DMAX1 IN EXPRESSIONS    H0730760
C*****                                                  8.2/19-23H0730770
      FC2D(1,1) = 27.0D0                                                 H0730780
      CMDVS = AMAX0(5 + 9, MAX0(14 * 2, MAX1( 2.0 /1.0,1.0)))            H0730790
      CMEVS = CMDVS - 28.0                                               H0730800
      CMDVS = AMAX1((AMAX0((MAX0(29,-100)),5 + 10)), 2.0 * 2.0)          H0730810
      CMFVS = CMDVS - 29.0                                               H0730820
      MCAVI = MAX1((AMAX0(25, -(1 * 5))),100.0)                          H0730830
      MCBVI = MCAVI - 100                                                H0730840
      DPCVD = DMAX1(FC2D(1,1),DMAX1(1.0D0, 0.D0 * FC2D(1,1)))            H0730850
      DPDVD = DPCVD - 27.0D0                                             H0730860
      WRITE (NUVI,0736) CMEVS, CMFVS, MCBVI, DPDVD                       H0730870
C*****    TEST OF AMIN0, AMIN1, MIN0, MIN1 AND DMIN1 IN EXPRESSIONS    H0730880
C*****                                                  8.2/24-27H0730890
      CMDVS = AMIN1(2.5 + AC2S(1,1), AMIN0(-5, MIN0(0,1)))               H0730900
      CMEVS = CMDVS + 5.0                                                H0730910
      MCAVI = MIN0((MIN1( -99., 100.0 - 1.0 * 99.)), 2)                  H0730920
      MCBVI = MCAVI + 99                                                 H0730930
      MCAVI = MIN1( 2.0,AMIN1( 5. * 3.0, -9.0 /(-9.0)))                  H0730940
      MCCVI = MCAVI - 1                                                  H0730950
      DPCVD = DMIN1(FC2D(1,1), DMIN1(2.0D-1,0.0D0))                      H0730960
      DPDVD = DPCVD - 0.0D0                                              H0730970
      WRITE (NUVI,0737) CMEVS, MCBVI, MCCVI, DPDVD                       H0730980
C*****    TEST OF DSIGN,AND DBLE IN EXPRESSIONS          8.2/33,8.2/43H0730990
      DPCVD= DSIGN(FC2D(1,1) * 1.0D1, - 1.0D0)                           H0731000
      DPDVD = DPCVD + 27.0D1                                             H0731010
      DPCVD = DSIGN((DSIGN(2.0D0, -1.0D0) + 0.0D0), 9.0D0)               H0731020
      DPEVD = DPCVD - 2.0D0                                              H0731030
      DPCVD = DBLE( 2.0 * 4.0 + AC2S(1,1))                               H0731040
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      DPFVD = DPCVD - 35.0D0                                            H0731050
      DPCVD = DBLE(-32.00 / 8.0) * DBLE(-2.0)                           H0731060
      DPGVD = DPCVD - 8.0D0                                             H0731070
      WRITE (NUVI,0738) DPDVD, DPEVD, DPFVD, DPGVD                      H0731080
C*****    TEST DF DIM AND IDIM IN EXPRESSIDNS                 8.2/34-35H0731090
      CMDVS = DIM( 2.0 * 3.5 /7.0, AC2S(1,1))                           H0731100
      CMEVS = CMDVS - 0.0                                               H0731110
      CMDVS = DIM(DIM(9.0,-5.5), DIM(6.0,0.0))                          H0731120
      CMFVS = CMDVS - 8.5                                               H0731130
      MCA1I(1)=8                                                        H0731140
      MCCVI = IDIM(MCA1I(1) * 1, - (IDIM(0, -3)))                       H0731150
      MCDVI = MCCVI - 11                                                H0731160
      MCCVI = IDIM(((4 + 2 + 3)/3), - 2)                                H0731170
      MCEVI = MCCVI - 5                                                 H0731180
      WRITE (NUVI,9995) CMEVS, CMFVS, MCDVI, MCEVI                      H0731190
C*****    TEST DF SNGL, REAL , AIMAG, CMPLX AND CDNJG IN EXPRESSIDNS    H0731200
C*****                                                        8.2/36-47H0731210
      CMEVS = SNGL (1.0D0 * 2.D1 + AC2S(1,1))                           H0731220
      CMFVS = CMEVS - 47.0                                              H0731230
      CMEVS = REAL( CDNJG((1.0, -2.0)))+ AIMAG((99.0, -7.0))            H0731240
      CMGVS = CMEVS + 6.0                                               H0731250
      CMEVS = AIMAG(CMPLX(REAL((2.0,1.0)), SNGL (1.0D0)))               H0731260
      CMHVS = CMEVS - 1.0D0                                             H0731270
      WRITE (NUVI,0739) CMFVS, CMGVS, CMHVS                             H0731280
C*****    SDME COMBINATIDNS OF ABDVE INTRINSIC FUNCTIONS                H0731290
      CMEVS = AMIN1((FLOAT(IDIM(1+2,0))),(AIMAG(CMPLX(1.0,2.0))))       H0731300
      CMFVS = CMEVS - 2.0                                               H0731310
      CMEVS = REAL(CMPLX(SNGL(DABS(-DSIGN(DBLE(2.0),1.0D0))),CMAVS))    H0731320
      CMGVS = CMEVS - 2.0                                               H0731330
      WRITE (NUVI,9994) CMFVS, CMGVS                                    H0731340
C*****    END OF TEST STATEMENTS FDR SEGMENT 073                        H0731350
0731  FORMAT (/ 30H  TEST DF DABS IN EXPRESSIONS //4(D23.8/))           H0731360
0732  FORMAT (  30H  TEST OF AINT IN EXPRESSIONS //4(E19.6/))           H0731370
0733  FORMAT (  30H  TEST DF INT IN EXPRESSIONS  //4(I10/))             H0731380
0734  FORMAT (  30H  TEST OF IDINT IN EXPRESSIDNS//4(I10/))             H0731390
0735  FORMAT (  35H  TEST DF AMDD, MOD IN EXPRESSIONS //                H0731400
     1 2(E19.6/), 2(I10/))                                              H0731410
0736  FORMAT (  40H  TEST DF AMAX0,AMAX1,MAX0,MAX1 AND DMAX//           H0731420
     1 2(E19.6/), I10/ D23.8)                                           H0731430
0737  FORMAT (  40H1 TEST OF AMIN0,AMIN1,MIN0,MIN1 AND DMIN//           H0731440
     1 E19.6/ 2(I10/), D23.8)                                           H0731450
0738  FORMAT (/ 39H  TEST OF DSIGN AND DBLE IN EXPRESSIDNS//4(D23.8/))  H0731460
0739  FDRMAT (  35H  TEST OF SNGL,REAL,AIMAG,CMPLX AND /                H0731470
     123H  CONJG IN EXPRESSIDNS //3(E19.6/))                           H0731480
9994  FORMAT (  36H  TEST DF SDME CDMBINATIDNS OF ABDVE/                H0731490
     122H  INTRINSIC FUNCTIDNS //2(E19.6/) /40H  ALL ABOVE ANSWERS SHOULH0731500
     2D BE 0 FDR THIS/27H  SEGMENT TD BE SUCCESSFUL.)                   H0731510
9995  FDRMAT ( /37H  TEST DF DIM AND IDIM IN EXPRESSIONS/2(E19.6/),     H0731520
     1 2(I10/))                                                         H0731530
C*****    END DF TEST SEGMENT 073                                       H0731540
C*****  WHEN EXECUTING DNLY SEGMENT 073, THE  STDP  AND  END  CARDS     H0731550
C*****  WHICH APPEAR AS CDMMENT CARDS MUST HAVE THE  C=                 H0731560
C*****  IN COLUMNS  1  AND  2  REMDVED.                                 H0731570
C=    STOP                                                              H0731580
C=    END                                                               H0731590
      STOP                                                              H9999995
      END                                                               H9999999
 SAMPLE CDMPUTER, FORTRAN CDMPILER LEVEL
 DO NOT READ OR WRITE RECDRD 2. DDUBLE SPACE DN OUTPUT  ID 2
 DPERATING SYSTEM VERSION
 DO NOT READ OR WRITE RECORD 4. DDUBLE SPACE DN DUTPUT  ID 4
 DATE, INSTALLATION NAME
 DD NDT READ DR WRITE RECDRD 6. DOUBLE SPACE DN DUTPUT  ID 6
C*****    PART7    ************************************************H0002700
C*****                                                              H0002705
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS              H0002710
C*****                                                              H0002715
C*****    PREPARED BY THE NATIDNAL BUREAU OF STANDARDS      VERSION 3 H0002720
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C*****                                                                  H0002725
C*****    JUNE 1973                                                     H0002730
C*****                                                                  H0002735
C*****    PART 7  OF 14 PARTS                                           H0002740
C*****                                                                  H0002745
C*****    SEGMENTS INCLUDED                                             H0002750
C*****                                                                  H0002755
C*****      EXPON - 080  EXP                                            H0002760
C*****                                                                  H0002765
C*****      DEXPO - 081  DEXP                                           H0002770
C*****                                                                  H0002775
C*****      CEXPO - 082  CEXP                                           H0002780
C*****                                                                  H0002785
C*****      LOGTM - 083  ALOG                                           H0002790
C*****                                                                  H0002795
C*****      DPLOG - 084  DLOG                                           H0002800
C*****                                                                  H0002805
C*****      CXLOG - 085  CLOG                                           H0002810
C*****                                                                  H0002815
C*****      COLOG - 086  ALOG10                                         H0002820
C*****                                                                  H0002825
C*****      DCLOG - 087  DLOG10                                         H0002830
C*****                                                                  H0002835
C*****      SINUS - 088  SIN                                            H0002840
C*****                                                                  H0002845
C*****      DPSIN - 089  DSIN                                           H0002850
C*****                                                                  H0002855
C*****      CSICO - 090  CSIN (AND CCOS)                                H0002860
C*****                                                                  H0002865
C*****      COSNS - 091  COS                                            H0002870
C*****                                                                  H0002875
C*****      DPCOS - 092  DCOS                                           H0002880
C*****                                                                  H0012700
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN SEGMENTS  H0012705
C*****  080,081,082,083,084,085,086,087,088,089,090,091,092             H0012710
C*****  ARE RUN AS ONE MAIN PROGRAM.                                    H0012715
C*****                                                                  H0012720
      DIMENSION L1I (10)                                                H0012725
      DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, FVD, GVD, XVD, PIVD     H0012730
      COMPLEX EP1C(30), AVC, BVC                                        H0012735
C*****                                                                  H0012740
C*****  END OF SPECIFICATIONS FOR SEGMENTS                              H0012745
C*****  080,081,082,083,084,085,086,087,088,089,090,091,092             H0012750
C*********************************************************************H0800010
C*****                                                                  H0800020
C*****                          EXPON - 080                             H0800030
C*****                                                                  H0800040
C*********************************************************************H0800050
C*****  GENERAL PURPOSE                                    ASA REF     H0800060
C*****    .TO TEST BASIC EXTERNAL FUNCTION - EXP - EXPONENTIAL  8.3.3  H0800070
C*****    .USED IN SIMPLE ARITHMETIC EXPRESSIONS            TABLE 4     H0800080
C*****    .INTRINSIC FUNCTIONS  ABS AND SIGN ASSUMED WORKING            H0800090
C*****     ARGUMENTS ARE POWERS OF 2                                    H0800100
C*****                                                                  H0800110
C*****  S P E C I F I C A T I O N S  SEGMENT 080                        H0800120
C*****                                                                  H0012755
C*****  WHEN EXECUTING ONLY SEGMENT 080, REMOVE THE PRECEDING           H0012760
C*****  SPECIFICATIONS.  THIS SEGMENT HAS NO SPECIFICATIONS.            H0012765
C*****                                                                  H0800130
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS         H0800140
      IRVI = 5                                                          H0072700
      NUVI = 6                                                          H0072705
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0072710
      WRITE(NUVI,0071)                                                  H0072715
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0072720
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                  H0072725
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0072730
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0072735
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     5 23H  VERSION 3     PART 7 ///)                                        H0072740
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER           H0072745
C       PREPARED BY USER                                                    H0072750
C       READ, NO LIST                                                       H0072755
C       PREPARED BY USER                                                    H0072760
C       READ, NO LIST                                                       H0072765
C       PREPARED BY USER                                                    H0072770
C       READ, NO LIST                                                       H0072775
      READ(IRVI,0070)                                                       H0072780
      READ(IRVI,0072)                                                       H0072785
      READ(IRVI,0073)                                                       H0072790
0070  FORMAT(40H    BASED ON ASA FORTRAN X3.9-1966          /)              H0072795
0072  FORMAT(40H    TEST PROGRAMS                           /)              H0072800
0073  FORMAT(40H    FORTRAN COMPILER                        /)              H0072805
      WRITE(NUVI,0070)                                                      H0072810
      WRITE(NUVI,0072)                                                      H0072815
      WRITE(NUVI,0073)                                                      H0072820
      WRITE(NUVI,800)                                                       H0800150
800   FORMAT(15H1 EXPON - (080)//31H  BASIC EXTERNAL FUNCTION -EXP-         H0800160
     1//26H  (EXPONENTIAL -TYPE REAL)                                       H0800170
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H     H0800180
     3 HOLLERITH INFORMATION//9H  RESULTS)                                  H0800190
C*****    HEADER FOR SEGMENT 080 WRITTEN                                    H0800200
C*****  ARGUMENT RANGE FROM -16.0 TO +16.0                                  H0800210
      AVS = -16.0                                                           H0800220
      CVS =   4.0                                                           H0800230
      BVS = EXP(AVS)                                                        H0800240
      WRITE (NUVI,801) BVS                                                  H0800250
      BVS = EXP(2. * CVS + AVS)                                             H0800260
      WRITE (NUVI,802)  BVS                                                 H0800270
      BVS = EXP(AVS + (3. * CVS))                                           H0800280
      WRITE (NUVI, 803) BVS                                                 H0800290
      BVS = EXP(ABS(AVS) + AVS)                                             H0800300
      WRITE (NUVI, 804) BVS                                                 H0800310
      BVS = EXP(-AVS / CVS)                                                 H0800320
      WRITE (NUVI, 805) BVS                                                 H0800330
      BVS = EXP(SIGN(AVS + CVS * 2.0, CVS))                                 H0800340
      WRITE (NUVI, 806) BVS                                                 H0800350
      BVS = EXP(CVS + ABS(AVS) - 4.0)                                       H0800360
      WRITE(NUVI, 807) BVS                                                  H0800370
      WRITE (NUVI, 808)                                                     H0800380
801   FORMAT( 9H0 X=-16.0,5X,25H0.11253517471925911 45E-06/E27.7)           H0800390
802   FORMAT( 9H0 X= -8.0,5X,25H0.33546262790251183 88E-03/E27.7)           H0800400
803   FORMAT( 9H0 X= -4.0,5X,25H0.18315638888734180 29E-01/E27.7)           H0800410
804   FORMAT( 9H0 X=  0.0,5X,25H0.10000000000000000 00E+01/E27.7)           H0800420
805   FORMAT( 9H0 X=  4.0,5X,25H0.54598150033144239 08E+02/E27.7)           H0800430
806   FORMAT( 9H0 X=  8.0,5X,25H0.29809579870417282 75E+04/E27.7)           H0800440
807   FORMAT( 9H0 X= 16.0,5X,25H0.88861105205078726 37E+07/E27.7)           H0800450
808   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATION    H0800460
     1 PRINTED TO ,8H7 DIGITS)                                              H0800470
C*****    END OF TEST SEGMENT 080                                           H0800480
C*****  WHEN EXECUTING ONLY SEGMENT 080, THE  STOP  AND  END  CARDS         H0800490
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                      H0800500
C*****  IN COLUMNS  1  AND  2  REMOVED.                                     H0800510
C=    STOP                                                                  H0800520
C=    END                                                                   H0800530
C*******************************************************************************H0810010
C*****                                                                       H0810020
C*****                          DEXPO - 081                                  H0810030
C*****                                                                       H0810040
C*******************************************************************************H0810050
C*****  GENERAL PURPOSE                                                     H0810060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DEXP - EXPONENTIAL  ASA REF    H0810070
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS -SAME AS        8.3.3  H0810080
C*****     SEGMENT 080 EXCEPT DOUBLE PRECISION                   TABLE 4H0810090
C*****     INTRINSIC FUNCTIONS DABS AND DSIGN ASSUMED WORKING             H0810100
C*****     ARGUMENTS RANGE FROM -16.0D0 TO  +16.0D0, POWERS OF 2          H0810110
C*****                                                                    H0810120
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C*****  S P E C I F I C A T I O N S  SEGMENT 081                          H0810130
C*****                                                                   H0012770
C*****  WHEN EXECUTING ONLY SEGMENT 081, THE SPECIFICATION STATEMENTS    H0012775
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0012780
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0012785
C*****                                                                   H0012790
C=     DOUBLE PRECISION AVD, BVD, CVD                                    H0012795
C*****                                                                   H0012800
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0810140
C*****                                                                   H0072825
C*****  WHEN EXECUTING ONLY SEGMENT 081, THE FOLLOWING STATEMENT         H0072830
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.           H0072835
C=     NUVI = 6                                                          H0072840
C*****                                                                   H0072845
810    FORMAT(15H1 OEXPO - (081)//32H  BASIC EXTERNAL FUNCTION -DEXP-    H0810150
      1//38H  (EXPONENTIAL -TYPE DOUBLE PRECISION)                       H0810160
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0810170
      3 HOLLERITH INFORMATION//9H  RESULTS)                              H0810180
       WRITE (NUVI, 810)                                                 H0810190
C*****     HEADER FOR SEGMENT 081 WRITTEN                                H0810200
       AVD = -16.0D0                                                     H0810210
       CVD =   4.0D0                                                     H0810220
       BVD = DEXP(AVD)                                                   H0810230
       WRITE (NUVI, 811) BVD                                             H0810240
       BVD = OEXP(2. * CVD + AVO)                                        H0810250
       WRITE (NUVI, 812) BVD                                             H0810260
       BVD = DEXP(AVD + (3. * CVD))                                      H0810270
       WRITE (NUVI, 813) BVD                                             H0810280
       BVD = DEXP(DABS(AVD) + AVD)                                       H0810290
       WRITE( NUVI, 814) BVD                                             H0810300
       BVD = DEXP(-AVD / CVD)                                            H0810310
       WRITE (NUVI, 815) BVD                                             H0810320
       BVD = DEXP(DSIGN(AVD + CVD * 2.0D0, CVO))                         H0810330
       WRITE (NUVI, 816) BVD                                             H0810340
       BVD = DEXP(CVD + DABS(AVD) - 4.0)                                 H0810350
       WRITE (NUVI, 817) BVD                                             H0810360
       WRITE (NUVI, 818)                                                 H0810370
811    FORMAT( 9H0 X=-16.0,5X,25H0.11253517471925911450-06/D34.14)       H0810380
812    FORMAT( 9H0 X= -8.0,5X,25H0.33546262790251183880-03/D34.14)       H0810390
813    FORMAT( 9H0 X= -4.0,5X,25H0.18315638888734180290-01/D34.14)       H0810400
814    FORMAT( 9H0 X=  0.0,5X,25H0.10000000000000000000+01/D34.14)       H0810410
815    FORMAT( 9H0 X=  4.0,5X,25H0.54598150033144239080+02/D34.14)       H0810420
816    FORMAT( 9H0 X=  8.0,5X,25H0.29809579870417282750+04/D34.14)       H0810430
817    FORMAT( 9H0 X= 16.0,5X,25H0.88861105205078726370+07/D34.14)       H0810440
818    FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0810450
      A PRINTED TO ,9H14 OIGITS)                                         H0810460
C*****    END OF TEST SEGMENT 081                                       H0810470
C*****  WHEN EXECUTING ONLY SEGMENT 081, THE  STOP  AND  ENO  CAROS     H0810480
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0810490
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0810500
C=     STOP                                                              H0810510
C=     END                                                               H0810520
C******************************************************************************H0820010
C******                                                                  H0820020
C*****                    CEXPO - (082)                                 H0820030
C******                                                                  H0820040
C******************************************************************************H0820050
C*****  GENERAL PURPOSE                                        ASA REF.H0820060
C*****     .TO TEST THE BASIC EXTERNAL FUNCTION- CEXP            8.3.3  H0820070
C*****     .TESTING RANGE EXTENDS FROM 0 TO 16 FOR MOOULUS     (TABLE 4)H0820080
C*****      AND ARGUMENT, VARIES BY STEPS OF PI/3 MAGNITUDE              H0820090
C*****     .INTRINSIC FUNCTIONS CMPLX, SNGL, MOD ASSUMED WORKING         H0820100
C*****                                                                   H0820110
C*****  S P E C I F I C A T I O N S  SEGMENT 082                         H0820120
C*****                                                                   H0012805
C*****  WHEN EXECUTING ONLY SEGMENT 082, THE SPECIFICATION STATEMENTS    H0012810
C*****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE  C=                  H0012815
C*****  IN COLUMNS  1  AND  2  REMOVEO.                                  H0012820
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C*****                                                                  H0012825
C=    COMPLEX EP1C(30), AVC, BVC                                        H0012830
C=    DOUBLE PRECISION AVD, BVD                                         H0012835
C*****                                                                  H0012840
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0820130
C*****                                                                  H0072850
C*****  WHEN EXECUTING ONLY SEGMENT 082, THE FOLLOWING STATEMENT        H0072855
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          H0072860
C=    NUVI = 6                                                          H0072865
C*****                                                                  H0072870
      WRITE(NUVI,820)                                                   H0820140
820   FORMAT(15H1 CEXP0 - (082)//32H  BASIC EXTERNAL FUNCTION -CEXP-    H0820150
     1// 29H  (EXPONENTIAL -TYPE COMPLEX)//27H  ASA REF.- 8.3.3 (TABLE 4H0820160
     2)//20H  (COMPLEX ARGUMENT)/8X,15HEXPECTED RESULT /8X,15HFUNCTION RH0820170
     3ESULT)                                                            H0820180
C*****  LOG OF 10                                                       H0820190
      BVD = 2.3025850929940D0                                           H0820200
C*****  SINE OF 60 DEGREES                                              H0820210
      AVD = .86602540378444D0                                           H0820220
C*****    INITIALIZE EP1C (EXPECTED VALUES)                             H0820230
      EP1C(1) = CMPLX(0.5E-7,SNGL(-AVD*1.D-7))                          H0820240
      EP1C(2) = CMPLX(2.5E-7,SNGL(-AVD*5.D-7))                          H0820250
      EP1C(3) = (1.E-6,0.0)                                             H0820260
      EP1C(4) = (5.E-6,0.0)                                             H0820270
      EP1C(5) = CMPLX(0.5E-5,SNGL(AVD*1.D-5))                           H0820280
      EP1C(6) = CMPLX(2.5E-5,SNGL(AVD*5.D-5))                           H0820290
      EP1C(7) = CMPLX(-.5E-4,SNGL(AVD * 1.D-4))                         H0820300
      EP1C(8) = CMPLX(-2.5E-4,SNGL(AVD*5.D-4))                          H0820310
      EP1C(9) = (-1.E-3,0.0)                                            H0820320
      EP1C(10) = (-5.E-3,0.0)                                           H0820330
      EP1C(11) = CMPLX(-0.5E-2,SNGL(-AVD*1.D-2))                        H0820340
      EP1C(12) = CMPLX(-2.5E-2,SNGL(-AVD * 5.D-2))                      H0820350
      EP1C(13) = CMPLX(0.5E-1,SNGL(-AVD*1.D-1))                         H0820360
      EP1C(14) = CMPLX(2.5E-1,SNGL(-AVD*5.D-1))                         H0820370
      EP1C(15) = (1.0,0.0)                                              H0820380
      EP1C(16) = (5.0,0.0)                                              H0820390
      EP1C(17) = CMPLX(0.5E1,SNGL(AVD * 1.D1))                          H0820400
      EP1C(18) = CMPLX(2.5E1,SNGL(AVD * 5.D1))                          H0820410
      EP1C(19) = CMPLX(-0.5E2,SNGL(AVD * 1.D2))                         H0820420
      EP1C(20) = CMPLX(-2.5E2,SNGL(AVD * 5.D2))                         H0820430
      EP1C(21) = (-1.E3,0.0)                                            H0820440
      EP1C(22) = (-5.E3,0.0)                                            H0820450
      EP1C(23) = CMPLX(-0.5E4,SNGL(-AVD * 1.D4))                        H0820460
      EP1C(24) = CMPLX(-2.5E4,SNGL(-AVD * 5.D4))                        H0820470
      EP1C(25) = CMPLX(0.5E5,SNGL(-AVD * 1.D5))                         H0820480
      EP1C(26) = CMPLX(2.5E5,SNGL(-AVD * 5.D5))                         H0820490
      EP1C(27) = (1.E6,0.0)                                             H0820500
      EP1C(28) = (5.E6,0.0)                                             H0820510
      EP1C(29) = CMPLX(0.5E7,SNGL(AVD * 1.D7))                          H0820520
      EP1C(30) = CMPLX(2.5E7,SNGL(AVD * 5.D7))                          H0820530
      IVI = 0                                                           H0820540
  821 IVI = IVI + 1                                                     H0820550
      IF ( MOD(IVI,2).EQ.0) GO TO 822                                   H0820560
      XIVS = ((IVI + 1)/2) - 8                                          H0820570
      AVS = BVD * XIVS                                                  H0820580
      GO TO 823                                                         H0820590
C*****  1.609  IS LOG OF 5                                              H0820600
  822 XIVS = (IVI / 2) - 8                                              H0820610
      AVS = BVD * XIVS + 1.609437912434 1D0                             H0820620
C*****  1.047 IS PI/3                                                   H0820630
 823  AVC =  CMPLX(AVS,SNGL(1.047197551 1966D0 * XIVS))                 H0820640
      BVC = CEXP(AVC)                                                   H0820650
      WRITE(NUVI, 824) AVC, EP1C(IVI), BVC                              H0820660
      IF (IVI - 10) 825, 827, 825                                       H0820670
  825 IF (IVI - 20) 826, 827, 826                                       H0820680
  826 IF (IVI - 30) 821, 828, 828                                       H0820690
  827 WRITE(NUVI, 829)                                                  H0820700
      GO TO 821                                                         H0820710
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  828 CONTINUE                                                          H0820720
829   FORMAT(22H1 CEXPO - (082) -CEXP-)                                 H0820730
  824 FORMAT(3H0 (,E14.7,1H,,E14.7,1H),2(/8X,2E16.7))                   H0820740
C*****     END OF TEST SEGMENT 082                                      H0820750
C*****  WHEN EXECUTING ONLY SEGMENT 082, THE STOP AND END CARDS         H0820760
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0820770
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0820780
C=     STOP                                                           H0820790
C=     END                                                            H0820800
C*******************************************************************H0830010
C*****                                                                H0830020
C*****                          LOGTM - 083                           H0830030
C*****                                                                H0830040
C*******************************************************************H0830050
C*****  GENERAL PURPOSE                                               H0830060
C*****     .TO TEST BASIC EXTERNAL FUNCTION - ALOG -          ASA REF H0830070
C*****      NATURAL LOG -USED IN SIMPLE ARITHMETIC EXPRESSIONS  8.3.3 H0830080
C*****      INTRINSIC FUNCTIONS ABS,AMIN1,INT,MIN0,FLOAT,      TABLE 4 H0830090
C*****      SIGN ASSUMED WORKING                                       H0830100
C*****      ARGUMENTS ARE POWERS(OR SUMS) OF 2                         H0830110
C*****                                                                 H0830120
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0830130
C*****                                                                 H0072875
C*****  WHEN EXECUTING ONLY SEGMENT 083, THE FOLLOWING STATEMENT       H0072880
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0072885
C=     NUVI = 6                                                       H0072890
C*****                                                                H0072895
830   FORMAT(15H1 LOGTM - (083)//32H  BASIC EXTERNAL FUNCTION -ALOG-   H0830140
     1//26H  (NATURAL LOG -TYPE REAL)                                  H0830150
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0830160
     3 HOLLERITH INFORMATION//9H  RESULTS)                             H0830170
      WRITE (NUVI, 830)                                                H0830180
C*****     HEADER FOR SEGMENT 083 WRITTEN                              H0830190
      AVS = .25                                                        H0830200
      CVS = 2.0                                                        H0830210
      MVI = -2                                                         H0830220
      BVS = ALOG(AVS / 2.0)                                            H0830230
      WRITE (NUVI, 831) BVS                                            H0830240
      BVS = ALOG(AVS)                                                  H0830250
      WRITE (NUVI, 832) BVS                                            H0830260
      BVS = ALOG(AVS * CVS)                                            H0830270
      WRITE (NUVI, 833) BVS                                            H0830280
      BVS = ALOG(AVS * CVS ** 2)                                       H0830290
      WRITE (NUVI, 834) BVS                                            H0830300
      BVS = ALOG(AMIN1(AVS * 2.0 + ABS(FLOAT(MVI) / CVS),CVS))         H0830310
      WRITE (NUVI, 835) BVS                                            H0830320
      BVS = ALOG(SIGN(FLOAT(MIN0(MVI,INT(CVS))),AVS))                  H0830330
      WRITE (NUVI, 836) BVS                                            H0830340
831   FORMAT( 9H0 X=0.125,5X,19H-2.07944154167983 59/14X,F9.6)         H0830350
832   FORMAT( 9H0 X=0.25 ,5X,19H-1.3862943611198906/14X,F 9.6)         H0830360
833   FORMAT( 9H0 X=0.5  ,5X,19H-0.6931471805599453/14X,F10.7)         H0830370
834   FORMAT( 9H0 X=1.0  ,5X,19H 0.0000000000000000/14X,F10.7)         H0830380
835   FORMAT( 9H0 X=1.5  ,5X,19H 0.4054651081081644/14X,F10.7)         H0830390
836   FORMAT( 9H0 X=2.0  ,5X,19H 0.6931471805599453/14X,F10.7)         H0830400
      WRITE (NUVI, 837)                                                H0830410
837   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0830420
     1 PRINTED TO ,8H7 DIGITS)                                         H0830430
C*****     END OF TEST SEGMENT 083                                     H0830440
C*****  WHEN EXECUTING ONLY SEGMENT 083, THE  STOP  AND  END  CARDS    H0830450
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 H0830460
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0830470
C=     STOP                                                           H0830480
C=     END                                                            H0830490
C*******************************************************************H0840010
C*****                                                                H0840020
C*****                          DPLOG - 084                           H0840030
C*****                                                                H0840040
C*******************************************************************H0840050
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C*****  GENERAL PURPOSE                                                  H0840060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DLOG -              ASA REF H0840070
C*****     NATURAL LOG -TYPE DOUBLE PRECISION                     8.3.3  H0840080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS                 TABLE 4 H0840090
C*****     INTRINSIC FUNCTIONS DMIN1,DABS,DBLE,FLOAT,DSIGN,               H0840100
C*****     MIN0,DINT, ASSUMED WORKING                                     H0840110
C*****     ARGUMENTS ARE POWERS OF 2                                      H0840120
C*****                                                                    H0840130
C*****  S P E C I F I C A T I O N S  SEGMENT 084                          H0840140
C*****                                                                    H0012845
C*****  WHEN EXECUTING ONLY SEGMENT 084, THE SPECIFICATION STATEMENTS     H0012850
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                   H0012855
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0012860
C*****                                                                    H0012865
C=     DOUBLE PRECISION AVD, BVD, CVD                                     H0012870
C*****                                                                    H0012875
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H0840150
C*****                                                                    H0072900
C*****  WHEN EXECUTING ONLY SEGMENT 084, THE FOLLOWING STATEMENT          H0072905
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            H0072910
C=     NUVI = 6                                                           H0072915
C*****                                                                    H0072920
840    FORMAT(15H1 DPLOG - (084)//32H  BASIC EXTERNAL FUNCTION -DLOG-     H0840160
      1//38H  (NATURAL LOG -TYPE DOUBLE PRECISION)                        H0840170
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H  H0840180
      3 HOLLERITH INFORMATION//9H  RESULTS)                               H0840190
       WRITE (NUVI, 840)                                                  H0840200
C*****    HEADER FOR SEGMENT 084 WRITTEN                                  H0840210
       AVD = .25D0                                                        H0840220
       CVD = 2.0D0                                                        H0840230
       MVI = -2                                                           H0840240
       BVD = DLOG(AVD / 2.0D0)                                            H0840250
       WRITE (NUVI, 841) BVD                                              H0840260
       BVD = DLOG(AVD)                                                    H0840270
       WRITE( NUVI, 842) BVD                                              H0840280
       BVD = DLOG(AVD * CVD)                                              H0840290
       WRITE(NUVI, 843) BVD                                               H0840300
       BVD = DLOG(AVD * CVD ** 2)                                         H0840310
       WRITE (NUVI, 844) BVD                                              H0840320
       BVD = DLOG(DMIN1(AVD * 2.0D0 +DABS(DBLE(FLOAT(MVI))/CVD), CVD))    H0840330
       WRITE (NUVI, 845) BVD                                              H0840340
       BVD = DLOG(DSIGN(DBLE(FLOAT(MIN0(MVI,IDINT(CVD)))),AVD))           H0840350
       WRITE (NUVI, 846) BVD                                              H0840360
       WRITE (NUVI, 847)                                                  H0840370
841    FORMAT( 9H0 X=0.125,5X,23H-2.0794415416798359D+00/1PD34.13)        H0840380
842    FORMAT( 9H0 X=0.25 ,5X,23H-1.3862943611198906D+00/1PD34.13)        H0840390
843    FORMAT( 9H0 X=0.5  ,5X,23H-0.6931471805599453D+00/  D35.14)        H0840400
844    FORMAT( 9H0 X=1.0  ,5X,23H 0.000000000000000     /  D35.14)        H0840410
845    FORMAT( 9H0 X=1.5  ,5X,23H 0.4054651081081644D+00/  D35.14)        H0840420
846    FORMAT( 9H0 X=2.0  ,5X,23H 0.6931471805599453D+00/  D35.14)        H0840430
847    FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0840440
      A PRINTED TO ,9H14 DIGITS)                                          H0840450
C*****    END OF TEST SEGMENT 084                                         H0840460
C*****  WHEN EXECUTING ONLY SEGMENT 084, THE  STOP  AND  END  CARDS       H0840470
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    H0840480
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0840490
C=     STOP                                                               H0840500
C=     END                                                                H0840510
C*******************************************************************************H0850010
C*****                                                                    H0850020
C*****                          CXLOG - (085)                             H0850030
C*****                                                                    H0850040
C*******************************************************************************H0850050
C*****  GENERAL PURPOSE                                          ASA REF H0850060
C*****     .TO TEST BASIC EXTERNAL FUNCTION - CLOG -             ASA REF H0850070
C*****     (COMPLEX LOG)                                          8.3.3  H0850080
C*****     TESTING RANGE EXTENDS FROM 0 TO 5.E7 FOR MODULUS      TABLE 4 H0850090
C*****     AND ARGUMENT VARIES BY STEPS OF PI/3 MAGNITUDE                 H0850100
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C*****      INTRINSIC FUNCTIONS CMPLX, SNGL, MOD ASSUMED WORKING          H0850110
C*****                                                                    H0850120
C*****  S P E C I F I C A T I O N S  SEGMENT 085                          H0850130
C*****                                                                    H0012880
C*****  WHEN EXECUTING ONLY SEGMENT 085, THE SPECIFICATION STATEMENTS     H0012885
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    H0012890
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0012895
C*****                                                                    H0012900
C=     COMPLEX EP1C(30), AVC, BVC                                         H0012905
C=     DOUBLE PRECISION AVD, BVD                                          H0012910
C*****                                                                    H0012915
C*****  O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0850140
C*****                                                                    H0072925
C*****  WHEN EXECUTING ONLY SEGMENT 085, THE FOLLOWING STATEMENT          H0072930
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            H0072935
C=     NUVI = 6                                                           H0072940
C*****                                                                    H0072945
       WRITE (NUVI, 850)                                                  H0850150
850    FORMAT( 15H1 CXLOG - (085) //32H  BASIC EXTERNAL FUNCTION -CLOG-   H0850160
      1// 29H  (NATURAL LOG -TYPE COMPLEX)//27H  ASA REF.- 8.3.3 (TABLE 4H0850170
      2)//20H  (COMPLEX ARGUMENT)/ 8X,15HEXPECTED RESULT /8X,15HFUNCTION H0850180
      3RESULT)                                                           H0850190
C*****  LOG OF 10                                                         H0850200
       BVD = 2.302585092994OD0                                            H0850210
C*****  SINE OF 60 DEGREES                                                H0850220
       AVD = .86602540378444D0                                            H0850230
C*****  INITIALIZE EP1C (EXPECTED VALUES)                                 H0850240
       EP1C(1) = CMPLX(0.5E-7,SNGL(-AVD*1.D-7))                           H0850250
       EP1C(2) = CMPLX(2.5E-7,SNGL(-AVD*5.D-7))                           H0850260
       EP1C(3) = (1.E-6,0.0)                                              H0850270
       EP1C(4) = (5.E-6,0.0)                                              H0850280
       EP1C(5) = CMPLX(0.5E-5,SNGL(AVD*1.D-5))                            H0850290
       EP1C(6) = CMPLX(2.5E-5,SNGL(AVD*5.D-5))                            H0850300
       EP1C(7) = CMPLX(-.5E-4,SNGL(AVD * 1.D-4))                          H0850310
       EP1C(8) = CMPLX(-2.5E-4,SNGL(AVD*5.D-4))                           H0850320
       EP1C(9) = (-1.E-3,0.0)                                             H0850330
       EP1C(10) = (-5.E-3,0.0)                                            H0850340
       EP1C(11) = CMPLX(-0.5E-2,SNGL(-AVD*1.D-2))                         H0850350
       EP1C(12) = CMPLX(-2.5E-2,SNGL(-AVD * 5.D-2))                       H0850360
       EP1C(13) = CMPLX(0.5E-1,SNGL(-AVD*1.D-1))                          H0850370
       EP1C(14) = CMPLX(2.5E-1,SNGL(-AVD*5.D-1))                          H0850380
       EP1C(15) = (1.0,0.0)                                               H0850390
       EP1C(16) = (5.0,0.0)                                               H0850400
       EP1C(17) = CMPLX(0.5E1,SNGL(AVD * 1.D1))                           H0850410
       EP1C(18) = CMPLX(2.5E1,SNGL(AVD * 5.D1))                           H0850420
       EP1C(19) = CMPLX(-0.5E2,SNGL(AVD * 1.D2))                          H0850430
       EP1C(20) = CMPLX(-2.5E2,SNGL(AVD * 5.D2))                          H0850440
       EP1C(21) = (-1.E3,0.0)                                             H0850450
       EP1C(22) = (-5.E3,0.0)                                             H0850460
       EP1C(23) = CMPLX(-0.5E4,SNGL(-AVD * 1.D4))                         H0850470
       EP1C(24) = CMPLX(-2.5E4,SNGL(-AVD * 5.D4))                         H0850480
       EP1C(25) = CMPLX(0.5E5,SNGL(-AVD * 1.D5))                          H0850490
       EP1C(26) = CMPLX(2.5E5,SNGL(-AVD * 5.D5))                          H0850500
       EP1C(27) = (1.E6,0.0)                                              H0850510
       EP1C(28) = (5.E6,0.0)                                              H0850520
       EP1C(29) = CMPLX(0.5E7,SNGL(AVD * 1.D7))                           H0850530
       EP1C(30) = CMPLX(2.5E7,SNGL(AVD * 5.D7))                           H0850540
C*****  YVS COMPENSATES FOR -2PI AND +2PI GENERATED BY USE OF XIVS*PI/3   H0850550
C*****  FOR EXPECTED IMAGINARY VALUES, TAKES VALUES +6,0,-6 DURING RANGE  H0850560
       YVS = 6.                                                           H0850570
       IVI = 0                                                            H0850580
851    IVI = IVI +1                                                       H0850590
       IF (MOD(IVI, 2) .EQ. 0) GO TO 852                                  H0850600
       XIVS = ((IVI + 1)/2) - 8                                           H0850610
       AVS = BVD * XIVS                                                   H0850620
       GO TO 853                                                          H0850630
C*****    1.609 IS LOG OF 5                                               H0850640
852    XIVS = (IVI / 2) - 8                                               H0850650
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      AVS = (BVD * XIVS) + 1.609437912434 1D0                           H0850660
C*****    1.047 IS PI/3                                                 H0850670
853   AVC = CMPLX (AVS, SNGL(1.047197551196 6D0 * (XIVS + YVS)))        H0850680
      BVC = CLOG (EP1C(IVI))                                            H0850690
      WRITE (NUVI, 854) EP1C(IVI), AVC, BVC                             H0850700
      IF(IVI - 10) 855, 858, 855                                        H0850710
855   IF (IVI - 20) 856, 859, 856                                       H0850720
856   IF (IVI - 22) 857, 7850, 857                                      H0850730
857   IF (IVI - 30) 851, 7851, 7851                                     H0850740
858   YVS = 0.0                                                         H0850750
859   WRITE (NUVI, 7852)                                                H0850760
      GO TO 851                                                         H0850770
7850  YVS = -6.0                                                        H0850780
      GO TO 851                                                         H0850790
7851  CONTINUE                                                          H0850800
854   FORMAT(3H0 (,E14.7,1H,,E14.7,1H),2(/8X,2E16.7))                   H0850810
7852  FORMAT(22H1 CXLOG - (085) -CLOG-)                                 H0850820
C*****    END OF TEST SEGMENT 085                                       H0850830
C*****  WHEN EXECUTING ONLY SEGMENT 085, THE STOP AND END CARDS         H0850840
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0850850
C*****  IN COLUMNS 1  AND  2 REMOVED.                                   H0850860
C=    STOP                                                              H0850870
C=    END                                                               H0850880
C*************************************************************************H0860010
C*****                                                                 H0860020
C*****                          COLOG - 086                            H0860030
C*****                                                                 H0860040
C*************************************************************************H0860050
C*****  GENERAL PURPOSE                                                 H0860060
C*****     TO TEST BASIC EXTERNAL FUNCTION - ALOG10 -          ASA REF H0860070
C*****     COMMON LOG - TYPE REAL                               8.3.3  H0860080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS               TABLE 4H0860090
C*****     INTRINSIC FUNCTIONS ABS,AINT,AMAX1,SIGN, ASSUMED WORKING    H0860100
C*****     ARGUMENT RANGE  0.5 TO 16.0 ,POWERS OF 2                    H0860110
C*****                                                                 H0860120
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0860130
C*****                                                                 H0072950
C*****  WHEN EXECUTING ONLY SEGMENT 086, THE FOLLOWING STATEMENT       H0072955
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0072960
C=    NUVI = 6                                                          H0072965
C*****                                                                 H0072970
860   FORMAT(15H1 COLOG - (086)//34H  BASIC EXTERNAL FUNCTION -ALOG10-  H0860140
     1//25H  (COMMON LOG -TYPE REAL)                                    H0860150
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0860160
     3 HOLLERITH INFORMATION//9H  RESULTS)                              H0860170
      WRITE (NUVI, 860)                                                 H0860180
C*****    HEADER FOR SEGMENT 086 WRITTEN                                H0860190
      AVS = -2.0                                                        H0860200
      CVS = -4.0                                                        H0860210
      BVS = ALOG10(AVS / CVS)                                           H0860220
      WRITE (NUVI, 861) BVS                                             H0860230
      BVS = ALOG10(ABS(AVS + 1.0))                                      H0860240
      WRITE (NUVI, 862) BVS                                             H0860250
      BVS = ALOG10( -AVS)                                               H0860260
      WRITE (NUVI, 863) BVS                                             H0860270
      BVS = ALOG10(AINT(AVS + 2.0 - CVS))                               H0860280
      WRITE (NUVI, 864) BVS                                             H0860290
      BVS = ALOG10(AMAX1(AVS * CVS, CVS * 2.0))                         H0860300
      WRITE (NUVI, 865) BVS                                             H0860310
      BVS = ALOG10(SIGN(CVS,(-AVS)) **2)                                H0860320
      WRITE (NUVI, 866) BVS                                             H0860330
      WRITE (NUVI, 867)                                                 H0860340
861   FORMAT( 8H0 X= 0.5,5X,25H-0.30102999566398119521 37/8X, F15.7)    H0860350
862   FORMAT( 8H0 X= 1.0,5X,25H 0.00000000000000000000 00/8X, F15.7)    H0860360
863   FORMAT( 8H0 X= 2.0,5X,25H 0.30102999566398119521 37/8X, F15.7)    H0860370
864   FORMAT( 8H0 X= 4.0,5X,25H 0.60205999132796239042 75/8X, F15.7)    H0860380
865   FORMAT( 8H0 X= 8.0,5X,25H 0.90308998699194358564 12/8X, F15.7)    H0860390
866   FORMAT( 8H0 X=16.0,5X,25H 1.20411998265592478085 50/8X, F15.7)    H0860400
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867   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0860410
     1 PRINTED TO ,8H7 DIGITS)                                          H0860420
C*****    END OF TEST SEGMENT 086                                       H0860430
C*****  WHEN EXECUTING ONLY SEGMENT 086, THE  STOP  AND  END  CARDS     H0860440
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0860450
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0860460
C=    STOP                                                             H0860470
C=    END                                                              H0860480
C*****************************************************************************H0870010
C*****                                                                 H0870020
C*****                          DCLOG - 087                            H0870030
C*****                                                                 H0870040
C*****************************************************************************H0870050
C*****  GENERAL PURPOSE                                                H0870060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DLOG10 -            ASA REFH0870070
C*****     COMMON LOG - TYPE DOUBLE PRECISION                    8.3.3  H0870080
C*****     SAME AS SEGMENT 086 EXCEPT FOR TYPE                   TABLE 4H0870090
C*****     INTRINSIC FUNCTIONS DABS,IDINT,FLOAT,DBLE,                   H0870100
C*****     DMAX1,DSIGN ASSUMED WORKING                                  H0870110
C*****     ARGUMENT RANGE  0.5 TO 16.0  POWERS OF 2                     H0870120
C*****                                                                  H0870130
C*****  S P E C I F I C A T I O N S  SEGMENT 087                        H0870140
C*****                                                                 H0012920
C*****  WHEN EXECUTING ONLY SEGMENT 087, THE SPECIFICATION STATEMENTS  H0012925
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 H0012930
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0012935
C*****                                                                 H0012940
C=    DOUBLE PRECISION AVD, BVD, CVD                                   H0012945
C*****                                                                 H0012950
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0870150
C*****                                                                 H0072975
C*****  WHEN EXECUTING ONLY SEGMENT 087, THE FOLLOWING STATEMENT       H0072980
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0072985
C=    NUVI = 6                                                         H0072990
C*****                                                                 H0072995
870   FORMAT(15H1 DCLOG - (087)//34H  BASIC EXTERNAL FUNCTION -DLOG10-  H0870160
     1//37H  (COMMON LOG -TYPE DOUBLE PRECISION)                       H0870170
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0870180
     3 HOLLERITH INFORMATION//9H  RESULTS)                             H0870190
      WRITE (NUVI, 870)                                                H0870200
C*****    HEADER FOR SEGMENT 087 WRITTEN                               H0870210
      AVD = -2.0D0                                                     H0870220
      CVD = -4.0D0                                                     H0870230
      BVD = DLOG10(AVD / CVD)                                          H0870240
      WRITE (NUVI, 871) BVD                                            H0870250
      BVD = DLOG10(DABS(AVD + 1.0D0))                                  H0870260
      WRITE (NUVI, 872) BVD                                            H0870270
      BVD = DLOG10( -AVD)                                              H0870280
      WRITE (NUVI, 873) BVD                                            H0870290
      BVD = DLOG10(DBLE(FLOAT(IDINT(AVD + 2.0D0 - CVD))))              H0870300
      WRITE (NUVI, 874) BVD                                            H0870310
      BVD = DLOG10(DMAX1(AVD * CVD, CVD * 2.0D0))                      H0870320
      WRITE (NUVI, 875) BVD                                            H0870330
      BVD = DLOG10(DSIGN(CVD,(-AVD)) **2)                              H0870340
      WRITE (NUVI, 876) BVD                                            H0870350
      WRITE (NUVI, 877)                                                H0870360
871   FORMAT( 8H0 X= 0.5,5X,29H-0.30102999566398119521370+00/D34.14)   H0870370
872   FORMAT( 8H0 X= 1.0,5X,29H 0.00000000000000000000000    /D34.14)  H0870380
873   FORMAT( 8H0 X= 2.0,5X,29H 0.30102999566398119521370+00/D34.14)   H0870390
874   FORMAT( 8H0 X= 4.0,5X,29H 0.60205999132796239042750+00/D34.14)   H0870400
875   FORMAT( 8H0 X= 8.0,5X,29H 0.90308998699194358564120+00/D34.14)   H0870410
876   FORMAT( 8H0 X=16.0,5X,29H 1.20411998265592478085500+00/1PD33.13)  H0870420
877   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0870430
     A PRINTED TO ,9H14 DIGITS)                                        H0870440
C*****    END OF TEST SEGMENT 087                                      H0870450
C*****  WHEN EXECUTING ONLY SEGMENT 087, THE  STOP  AND  END  CARDS    H0870460
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 H0870470
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0870480
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C=     STOP                                                              H0870490
C=     END                                                               H0870500
C***********************************************************************H0880010
C*****                                                                   H0880020
C*****                      SINUS - 088                                  H0880030
C*****                                                                   H0880040
C***********************************************************************H0880050
C*****  GENERAL PURPOSE                                           ASA REFH0880060
C*****      TO TEST BASIC EXTERNAL FUNCTION - SIN -               8.3.3  H0880070
C*****      TRIGONOMETRIC SINE - TYPE REAL                        TABLE 4H0880080
C*****      INTRINSIC FUNCTION SNGL ASSUMED WORKING                      H0880090
C*****      ARGUMENTS FROM 0 TO 2 PI                                     H0880100
C*****                                                                   H0880110
C*****  S P E C I F I C A T I O N S  SEGMENT 088                         H0880120
C*****                                                                   H0012955
C*****  WHEN EXECUTING ONLY SEGMENT 088, THE SPECIFICATION STATEMENTS    H0012960
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0012965
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0012970
C*****                                                                   H0012975
C=     DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, PIVD                    H0012980
C*****                                                                   H0012985
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H0880130
C*****                                                                   H0073000
C*****  WHEN EXECUTING ONLY SEGMENT 088, THE FOLLOWING STATEMENT         H0073005
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           H0073010
C=     NUVI = 6                                                          H0073015
C*****                                                                   H0073020
       WRITE (NUVI, 880)                                                 H0880140
880    FORMAT(15H1 SINUS - (088)//31H  BASIC EXTERNAL FUNCTION -SIN-     H0880150
     1//33H  (TRIGONOMETRIC SINE -TYPE REAL)                             H0880160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H  H0880170
     3 HOLLERITH INFORMATION//9H  RESULTS)                               H0880180
C*****     HEADER FOR SEGMENT 088 WRITTEN                                H0880190
       AVD = 3.140625D+0                                                 H0880200
       BVD = 0.9613037109375D-3                                          H0880210
       CVD = 0.57220458984375D-5                                         H0880220
       DVD = 0.59604644775390 6D-6                                       H0880230
       EVD = 0.31786509547056D-7                                         H0880240
C*****PI IS SUM OF AVD TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF  H0880250
C*****2, TO PERMIT A POSSIBLE 20 DECIMAL DIGIT ARGUMENT TO BE CREATED    H0880260
       PIVD = EVD + DVD + CVD + BVD + AVD                                H0880270
       AVS = 1.0                                                         H0880280
       CVS = 2.0                                                         H0880290
       BVS = SIN(CVS - 2.0 * AVS)                                        H0880300
       WRITE (NUVI, 881) BVS                                             H0880310
       BVS = SIN(AVS)                                                    H0880320
       WRITE (NUVI, 882) BVS                                             H0880330
       BVS = SIN (CVS)                                                   H0880340
       WRITE (NUVI, 883) BVS                                             H0880350
       BVS = SIN(AVS + CVS)                                              H0880360
       WRITE (NUVI,884) BVS                                              H0880370
       BVS = SIN(SNGL(PIVD))                                             H0880380
       WRITE (NUVI, 885) BVS                                             H0880390
       BVS = SIN(2. * CVS)                                               H0880400
       WRITE (NUVI, 886) BVS                                             H0880410
       BVS = SIN(2.0 + CVS + AVS)                                        H0880420
       WRITE (NUVI, 887) BVS                                             H0880430
       BVS = SIN(CVS * (AVS + CVS))                                      H0880440
       WRITE (NUVI, 888) BVS                                             H0880450
       BVS = SIN(SNGL(2.0D0 * PIVD))                                     H0880460
       WRITE (NUVI, 889) BVS                                             H0880470
       WRITE (NUVI, 7880)                                                H0880480
881    FORMAT( 9H0 X= 0.0 ,5X,15H 0.000000000000  /14X, F10.7)           H0880490
882    FORMAT( 9H0 X= 1.0 ,5X,15H+0.841470984808  /14X, F10.7)           H0880500
883    FORMAT( 9H0 X= 2.0 ,5X,15H+0.909297426826  /14X, F10.7)           H0880510
884    FORMAT( 9H0 X= 3.0 ,5X,15H+0.141120008060  /14X, F10.7)           H0880520
885    FORMAT( 9H0 X= (PI),5X,15H 0.000000000000  /14X, F10.7)           H0880530
886    FORMAT( 9H0 X= 4.0 ,5X,15H-0.756802495308  /14X, F10.7)           H0880540
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887   FORMAT( 9H0 X= 5.0 ,5X,15H-0.958924274663  /14X, F10.7)          H0880550
888   FORMAT( 9H0 X= 6.0 ,5X,15H-0.279415498198  /14X, F10.7)          H0880560
889   FORMAT( 9H0 X=(2PI),5X,15H 0.000000000000  /14X, F10.7)          H0880570
7880  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0880580
     1 PRINTED TO ,8H7 DIGITS)                                        H0880590
C*****    END OF TEST SEGMENT 088                                     H0880600
C*****  WHEN EXECUTING ONLY SEGMENT 088, THE  STOP  AND  END  CARDS   H0880610
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                H0880620
C*****  IN COLUMNS  1  AND  2  REMOVED.                               H0880630
C=    STOP                                                           H0880640
C=    END                                                            H0880650
C*************************************************************************H0890010
C*****                                                               H0890020
C*****                          DPSIN - 089                          H0890030
C*****                                                               H0890040
C*************************************************************************H0890050
C*****  GENERAL PURPOSE                                      ASA REFH0890060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DSIN -          8.3.3  H0890070
C*****     TRIGONOMETRIC SINE - TYPE DOUBLE PRECISION        TABLE 4H0890080
C*****     SAME AS SEGMENT 088 EXCEPT D.P.                           H0890090
C*****     INTRINSIC FUNCTION DSIGN ASSUMED WORKING                  H0890100
C*****     ARGUMENTS FROM 0 TO 2 PI                                  H0890110
C*****                                                               H0890120
C*****  S P E C I F I C A T I O N S  SEGMENT 089                     H0890130
C*****                                                               H0012990
C*****  WHEN EXECUTING ONLY SEGMENT 089, THE SPECIFICATION STATEMENTS H0012995
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=               H0013000
C*****  IN COLUMNS  1  AND  2  REMOVED.                              H0013005
C*****                                                               H0013010
C=    DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, PIVD, XVD, FVD, GVD  H0013015
C*****                                                               H0013020
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.   H0890140
C*****                                                               H0073025
C*****  WHEN EXECUTING ONLY SEGMENT 089, THE FOLLOWING STATEMENT     H0073030
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.       H0073035
C=    NUVI = 6                                                       H0073040
C*****                                                               H0073045
890   FORMAT(15H1 DPSIN - (089)//32H  BASIC EXTERNAL FUNCTION -DSIN- H0890150
     1//33H  (TRIGONOMETRIC SINE -TYPE D.P.)                          H0890160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0890170
     3 HOLLERITH INFORMATION//9H  RESULTS)                            H0890180
      WRITE (NUVI, 890)                                              H0890190
C*****    HEADER FOR SEGMENT 089 WRITTEN                             H0890200
      AVD = 3.140625D+0                                              H0890210
      BVD = 0.9613037109375D-3                                       H0890220
      CVD = 0.57220458984375D-5                                      H0890230
      DVD = 0.596046447753906D-6                                     H0890240
      EVD = 0.31786509547056D-7                                      H0890250
C*****PI IS SUM OF AVD TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF H0890260
C*****2, TO PERMIT A POSSIBLE 20 DECIMAL DIGIT ARGUMENT TO BE CREATED H0890270
      PIVD = EVD + DVD + CVD + BVD + AVD                             H0890280
      FVD = 1.0D0                                                    H0890290
      GVD = 2.0D0                                                    H0890300
      XVD = DSIN(GVD - 2.0D0 * FVD)                                  H0890310
      WRITE (NUVI, 891) XVD                                          H0890320
      XVD = DSIN(FVD)                                                H0890330
      WRIT  (NUVI, 892) XVD                                          H0890340
      XVD =  SIN(GVD)                                                H0890350
      W  TE (NUVI, 893) XVD                                          H0890360
        D = DSIN(GVD + FVD)                                          H0890370
      WRITE (NUVI, 894) XVD                                          H0890380
      XVD = DSIN(PIVD)                                               H0890390
      WRITE (NUVI, 895) XVD                                          H0890400
      XVD = DSIN(2. * GVD)                                           H0890410
      WRITE (NUVI, 896) XVD                                          H0890420
      XVD = DSIN(2.0 +FVD + GVD)                                     H0890430
      WRITE (NUVI, 897) XVD                                          H0890440
      XVD = DSIN(GVD * (FVD + GVD))                                  H0890450
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      WRITE (NUVI, 898) XVD                                                 H0890460
      XVD = DSIN(DSIGN(2.0D0 * PIVD, GVD))                                  H0890470
      WRITE (NUVI, 899) XVD                                                 H0890480
      WRITE (NUVI, 7890)                                                    H0890490
891   FORMAT(9H0 X= 0.0 ,  31H  0.000000000000000000000000      / D31.14) H0890500
892   FORMAT(9H0 X= 1.0 ,  31H +0.841470984807896506652 50D+00 /D31.14)  H0890510
893   FORMAT(9H0 X= 2.0 ,  31H +0.909297426825681695396 02D+00 /D31.14)  H0890520
894   FORMAT(9H0 X= 3.0 ,  31H +0.141120008059867222100 74D+00 /D31.14)  H0890530
895   FORMAT(9H0 X= (PI),  31H  0.000000000000000000000000      / D31.14) H0890540
896   FORMAT(9H0 X= 4.0 ,  31H -0.756802495307928251372 64D+00 /D31.14)  H0890550
897   FORMAT(9H0 X= 5.0 ,  31H -0.958924274663138468893 15D+00 / D31.14) H0890560
898   FORMAT(9H0 X= 6.0 ,  31H -0.279415498198925872811 56D+00 / D31.14) H0890570
899   FORMAT(9H0 X=(2PI),  31H  0.000000000000000000000000      / D31.14) H0890580
7890  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0890590
     A PRINTEO TO ,9H14 DIGITS)                                           H0890600
C*****    END OF TEST SEGMENT 089                                         H0890610
C*****  WHEN EXECUTING ONLY SEGMENT 089, THE  STOP  AND  END  CARDS       H0890620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                    H0890630
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0890640
C=    STOP                                                                H0890650
C=    END                                                                 H0890660
C*************************************************************************H0900010
C*****                                                                    H0900020
C*****                      CSICO - (090)                                 H0900030
C*****                                                                    H0900040
C*************************************************************************H0900050
C*****  GENERAL PURPOSE                                          ASA REF H0900060
C*****    TO TEST BASIC EXTERNAL FUNCTIONS  -CSIN- AND -CCOS-     8.3.3  H0900070
C*****    COMPLEX SINE AND COSINE                                 TABLE 4H0900080
C*****    INTRINSIC FUNCTION CMPLX ASSUMED WORKING                       H0900090
C*****                                                                   H0900100
C*****  S P E C I F I C A T I O N S  SEGMENT 090                         H0900110
C*****                                                                   H0013025
C*****  WHEN EXECUTING ONLY SEGMENT 090, THE SPECIFICATION STATEMENTS    H0013030
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                  H0013035
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0013040
C*****                                                                   H0013045
C=    DIMENSION L1I (10)                                                 H0013050
C=    COMPLEX AVC, BVC                                                   H0013055
C*****                                                                   H0013060
C*****  O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0900120
C*****                                                                   H0073050
C*****  WHEN EXECUTING ONLY SEGMENT 090, THE FOLLOWING STATEMENT         H0073055
C*****  NUVI = 6 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            H0073060
C=    NUVI = 6                                                           H0073065
C*****                                                                   H0073070
      WRITE (NUVI, 900)                                                  H0900130
900   FORMAT(15H1 CSICO - (090)//40H  BASIC EXTERNAL FUNCTIONS -CSIN , CH0900140
     1COS- //39H  (TRIG. SINE AND COSINE -TYPE COMPLEX)//26H  ASA REF 8.H0900150
     23.3 (TABLE 4) //10H  FUNCTION, 10X,7HRESULTS //)                  H0900160
      DATA LA2VI,LB2VI, LC2VI,LD2VI/2H0( ,2H, ,2H1/,1H)/                 H0900170
      DATA L1I(1),L1I(2),L1I(3),L1I(4),L1I(5)/                           H0900180
     -       2H1 ,  2H2 ,  2H3 ,  2H4 ,  2H5 /,                          H0900190
     -     L1I(6),L1I(7),L1I(8),L1I(9),L1I(10)/                          H0900200
     -       2H6 ,  2H7 ,  2H8 ,  2H9 ,  2H10 /                          H0900210
      AVC = (1.0,1.0)                                                    H0900220
      BVC = CSIN (AVC)                                                   H0900230
      WRITE(NUVI, 901) BVC                                               H0900240
      BVC = CCOS(AVC)                                                    H0900250
      WRITE (NUVI, 902) BVC                                              H0900260
      IVI = 0                                                            H0900270
905   IVI = IVI + 1                                                      H0900280
      AVS = IVI                                                          H0900290
      BVS = 1. / AVS                                                     H0900300
      AVC = CMPLX (AVS,BVS)                                              H0900310
      BVC = CSIN(AVC) ** 2 + CCOS(AVC) ** 2                              H0900320
      WRITE(NUVI, 904) LA2VI, L1I(IVI),LB2VI,LC2VI,L1I(IVI),LD2VI, BVC   H0900330
904   FORMAT(   A2,A2, A2,A2,A2,A1,4X,2F12.7)                            H0900340
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      IF(IVI - 10) 905, 906, 906                                        H0900350
906   CONTINUE                                                          H0900360
901   FORMAT(/13H  TABLE VALUE,4X,22H 1.2984576   0.6349639 /17H  CSIN(1H0900370
     1.,1.) =  ,F10.7,F12.7)                                            H0900380
902   FORMAT(/13H  TABLE VALUE,4X,22H 0.8337300  -0.9888977 /17H  CCOS(1H0900390
     1.,1.) =  ,F10.7,F12.7 ///35H  CSIN(X)**2 + CCOS(X)**2 = 1.0,0.0 / H0900400
     2 40H0 ARGUMENT     RESULTS SHOULD BE 1.0,0.0 )                    H0900410
C*****    ENO OF TEST SEGMENT 090                                       H0900420
C*****  WHEN EXECUTING ONLY SEGMENT 090, THE STOP ANO ENO CARDS         H0900430
C*****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=                  H0900440
C*****  IN COLUMNS  1  ANO  2 REMOVEO.                                  H0900450
C=    STOP                                                              H0900460
C=    END                                                               H0900470
C*****************************************************************************H0910010
C*****                                                                  H0910020
C*****                          COSNS - 091                             H0910030
C*****                                                                  H0910040
C*****************************************************************************H0910050
C*****  GENERAL PURPOSE                                          ASA REFH0910060
C*****     TO TEST BASIC EXTERNAL FUNCTION - COS -               8.3.3  H0910070
C*****     TRIGONOMETRIC COSINE - TYPE REAL                      TABLE 4H0910080
C*****     SAME AS SEGMENT     EXCEPT FOR COSINE                        H0910090
C*****     INTRINSIC FUNCTION SNGL ASSUMEO WORKING                      H0910100
C*****     ARGUMENTS FROM 0 TO 2 PI                                     H0910110
C*****                                                                  H0910120
C*****  S P E C I F I C A T I O N S  SEGMENT 091                        H0910130
C*****                                                                  H0013065
C*****  WHEN EXECUTING ONLY SEGMENT 091, THE SPECIFICATION STATEMENTS   H0013070
C*****  WHICH APPEAR AS COMMENT CAROS, MUST HAVE THE C=                 H0013075
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                 H0013080
C*****                                                                  H0013085
C=    OOUBLE PRECISION AVO, BVD, CVD, OVD, EVD, PIVD                    H0013090
C*****                                                                  H0013095
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0910140
C*****                                                                  H0073075
C*****  WHEN EXECUTING ONLY SEGMENT 091, THE FOLLOWING STATEMENT        H0073080
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.          H0073085
C=    NUVI = 6                                                          H0073090
C*****                                                                  H0073095
910   FORMAT(15H1 COSNS - (091)//31H  BASIC EXTERNAL FUNCTION -COS-     H0910150
     1//35H  (TRIGONOMETRIC COSINE -TYPE REAL)                          H0910160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0910170
     3 HOLLERITH INFORMATION//9H  RESULTS)                              H0910180
      WRITE (NUVI, 910)                                                 H0910190
C*****    HEAOER FOR SEGMENT 091 WRITTEN                                H0910200
      AVD = 3.1406250+0                                                 H0910210
      BVO = 0.96130371093750-3                                          H0910220
      CVO = 0.572204589843750-5                                         H0910230
      OVD = 0.5960464477539060-6                                        H0910240
      EVD = 0.317865095470560-7                                         H0910250
C*****PI IS SUM OF AVD TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF H0910260
C*****2, TO PERMIT A POSSIBLE 20 OECIMAL OIGIT ARGUMENT TO BE CREATEO   H0910270
      PIVO = EVO + OVO + CVO + BVO + AVO                                H0910280
      AVS = 1.0                                                         H0910290
      CVS = 2.0                                                         H0910300
      BVS = COS(CVS - 2.0 * AVS)                                        H0910310
      WRITE (NUVI, 911) BVS                                             H0910320
      BVS = COS(AVS)                                                    H0910330
      WRITE (NUVI, 912) BVS                                             H0910340
      BVS = COS(CVS)                                                    H0910350
      WRITE (NUVI, 913) BVS                                             H0910360
      BVS = COS(AVS + CVS)                                              H0910370
      WRITE (NUVI, 914) BVS                                             H0910380
      BVS = COS(SNGL(PIVO))                                             H0910390
      WRITE (NUVI, 915) BVS                                             H0910400
      BVS = COS(2. * CVS)                                               H0910410
      WRITE (NUVI, 916) BVS                                             H0910420
      BVS = COS(2.0 + CVS + AVS)                                        H0910430
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      WRITE (NUVI, 917) BVS                                             H0910440
      BVS = COS(CVS * (AVS + CVS))                                      H0910450
      WRITE (NUVI, 918) BVS                                             H0910460
      BVS = COS(SNGL(2.0D0 * PIVD))                                     H0910470
      WRITE (NUVI, 919) BVS                                             H0910480
      WRITE (NUVI, 7910)                                                H0910490
911   FORMAT( 9H0 X= 0.0 ,5X,15H+1.000000000000  /14X, F10.7)           H0910500
912   FORMAT( 9H0 X= 1.0 ,5X,15H+0.540302305868  /14X, F10.7)           H0910510
913   FORMAT( 9H0 X= 2.0 ,5X,15H-0.416146836547  /14X, F10.7)           H0910520
914   FORMAT( 9H0 X= 3.0 ,5X,15H-0.989992496600  /14X, F10.7)           H0910530
915   FORMAT( 9H0 X= (PI),5X,15H-1.000000000000  /14X, F10.7)           H0910540
916   FORMAT(9H0 X= 4.0 ,5X,15H-0.653643620864  /14X, F10.7)           H0910550
917   FORMAT( 9H0 X= 5.0 ,5X,15H+0.283662185463  /14X, F10.7)           H0910560
918   FORMAT( 9H0 X= 6.0 ,5X,15H+0.960170286650  /14X, F10.7)           H0910570
919   FORMAT( 9H0 X=(2PI),5X,15H+1.000000000000  /14X, F10.7)           H0910580
7910  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0910590
     1 PRINTED TO ,8H7 DIGITS)                                          H0910600
C*****    END OF TEST SEGMENT 091                                       H0910610
C*****  WHEN EXECUTING ONLY SEGMENT 091, THE  STOP  AND  END  CARDS     H0910620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0910630
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0910640
C=    STOP                                                              H0910650
C=    END                                                               H0910660
C*************************************************************************H0920010
C*****                                                                  H0920020
C*****                          DPCOS - (092)                           H0920030
C*****                                                                  H0920040
C*************************************************************************H0920050
C*****  GENERAL PURPOSE                                        ASA REFH0920060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DCOS -            8.3.3  H0920070
C*****     TRIGONOMETRIC COSINE -TYPE DOUBLE PRECISION         TABLE 4H0920080
C*****     SAME AS SEGMENT 091 EXCEPT D.P.                             H0920090
C*****     INTRINSIC FUNCTION DMAX1 ASSUMED WORKING                    H0920100
C*****     ARGUMENTS FROM 0 TO 2 PI                                    H0920110
C*****                                                                 H0920120
C*****  S P E C I F I C A T I O N S  SEGMENT 092                        H0920130
C*****                                                                 H0013100
C*****  WHEN EXECUTING ONLY SEGMENT 092, THE SPECIFICATION STATEMENTS  H0013105
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 H0013110
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0013115
C*****                                                                 H0013120
C=    DOUBLE PRECISION AVD, BVD, CVD, DVD, EVD, FVD, GVD, PIVD, XVD    H0013125
C*****                                                                 H0013130
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0920140
C*****                                                                 H0073100
C*****  WHEN EXECUTING ONLY SEGMENT 092, THE FOLLOWING STATEMENT       H0073105
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0073110
C=    NUVI = 6                                                         H0073115
C*****                                                                 H0073120
920   FORMAT(15H1 DPCOS - (092)//32H  BASIC EXTERNAL FUNCTION -DCOS-   H0920150
     1//35H  (TRIGONOMETRIC COSINE -TYPE D.P.)                         H0920160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0920170
     3 HOLLERITH INFORMATION//9H  RESULTS)                             H0920180
      WRITE (NUVI, 920)                                                H0920190
      AVD = 3.140625D+0                                                H0920200
      BVD = 0.9613037109375D-3                                         H0920210
      CVD = 0.57220458984375D-5                                        H0920220
      DVD = 0.596046447753906D-6                                       H0920230
      EVD = 0.31786509547056D-7                                        H0920240
C*****PI IS SUM OF AVD TO EVD, PARTS ARE EXPRESSED IN SUMS OF POWERS OF H0920250
C*****2, TO PERMIT A POSSIBLE 20 DECIMAL DIGIT ARGUMENT TO BE CREATED  H0920260
      PIVD = EVD + DVD + CVD + BVD + AVD                               H0920270
      FVD = 1.0D0                                                      H0920280
      GVD = 2.0D0                                                      H0920290
      XVD = DCOS(GVD - 2.0D0 * FVD)                                    H0920300
      WRITE (NUVI, 921) XVD                                            H0920310
      XVD = DCOS(FVD)                                                  H0920320
      WRITE (NUVI, 922) XVD                                            H0920330
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      XVD = DCOS(GVD)                                                   H0920340
      WRITE (NUVI, 923) XVD                                             H0920350
      XVD = DCOS(GVD + FVD)                                             H0920360
      WRITE (NUVI, 924) XVD                                             H0920370
      XVD = DCOS(PIVD)                                                  H0920380
      WRITE (NUVI, 925) XVD                                             H0920390
      XVD = DCOS(2. * GVD)                                              H0920400
      WRITE (NUVI, 926) XVD                                             H0920410
      XVD = DCOS(2.0 + FVD + GVD)                                       H0920420
      WRITE (NUVI, 927) XVD                                             H0920430
      XVD = DCOS(GVD * (FVD + GVD))                                     H0920440
      WRITE (NUVI, 928) XVD                                             H0920450
      XVD = DCOS(DMAX1(2.0D0 * PIVD, GVD))                              H0920460
      WRITE (NUVI, 929) XVD                                             H0920470
      WRITE (NUVI, 7992)                                                H0920480
921   FORMAT(9H0 X= 0.0 ,31H +0.10000000000000000000000D+01 / D31.14)   H0920490
922   FORMAT(9H0 X= 1.0 ,31H +0.54030230586813971740094D+00 /D31.14)    H0920500
923   FORMAT(9H0 X= 2.0 ,31H -0.41614683654714238699757D+00 / D31.14)   H0920510
924   FORMAT(9H0 X= 3.0 ,31H -0.98999249660044545727157D+00 / D31.14)   H0920520
925   FORMAT(9H0 X= (PI),31H -0.10000000000000000000000D+01 / D31.14)   H0920530
926   FORMAT(9H0 X= 4.0 ,31H -0.65364362086361191463917D+00 / D31.14)   H0920540
927   FORMAT(9H0 X= 5.0 ,31H +0.28366218546322626446664D+00 / D31.14)   H0920550
928   FORMAT(9H0 X= 6.0 ,31H +0.96017028665036602054565D+00 / D31.14)   H0920560
929   FORMAT(9H0 X=(2PI),31H +0.10000000000000000000000D+01 / D31.14)   H0920570
7992  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0920580
     A PRINTED TO ,9H14 DIGITS)                                         H0920590
C*****    END OF SEGMENT 092                                          H0920600
C*****  WHEN EXECUTING ONLY SEGMENT 092, THE  STOP  AND  END  CARDS   H0920610
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                H0920620
C*****  IN COLUMNS  1  AND  2  REMOVED.                               H0920630
C=    STOP                                                            H0920640
C=    END                                                             H0920650
      STOP                                                            H9999995
      END                                                             H9999999
 SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.   ID 2
 OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT    ID 4
 DATE, INSTALLATION NAME
       DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT    ID 6
C*****    PART8    ************************************************H0003200
C*****                                                              H0003205
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS              H0003210
C*****                                                              H0003215
C*****    PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3 H0003220
C*****                                                              H0003225
C*****    JUNE 1973                                                 H0003230
C*****                                                              H0003235
C*****    PART 8  OF 14 PARTS                                       H0003240
C*****                                                              H0003245
C*****    SEGMENTS INCLUDED                                         H0003250
C*****                                                              H0003255
C*****      TANGH - 094  TANH                                       H0003260
C*****                                                              H0003265
C*****      SQROT - 095  SQRT                                       H0003270
C*****                                                              H0003275
C*****      DSQRO - 096  DSQRT                                      H0003280
C*****                                                              H0003285
C*****      CSQRO - 097  CSQRT                                      H0003290
C*****                                                              H0003295
C*****      ARCTG - 098  ATAN                                       H0003300
C*****                                                              H0003305
C*****      DACTG - 099  DATAN                                      H0003310
C*****                                                              H0003315
C*****      ACTG2 - 100  ATAN2                                      H0003320
C*****                                                              H0003325
C*****      DATN2 - 101  DATAN                                      H0003330
C*****                                                              H0003335
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C*****       DMODA - 102  DMOD                                                H0003340
C*****                                                                        H0003345
C*****       CABSA - 103  CABS                                                H0003350
C*****                                                                        H0003355
C*****       BSFTS - 110 STATEMENT FUNCTIONS (REAL AND INTEGER)               H0003360
C*****                                                                        H0003365
C*****        BSFOF - 005 STATEMENT FUNCTION OEFINITIONS                      H0003370
C*****                                                                        H0003375
C*****       FSFTS - 111 STATEMENT FUNCTIONS (D.P., COMPLEX ANO LOGICAL)      H0003380
C*****                                                                        H0003385
C*****        FSFDF - 006 STATEMENT FUNCTION DEFINITIONS                      H0003390
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN SEGMENTS        H0013200
C*****  094, 095, 096, 097, 098, 099, 100, 101, 102, 103, 110                 H0013205
C*****  AND 111 ARE RUN AS ONE MAIN PROGRAM.                                  H0013210
C*****                                                                        H0013215
      INTEGER IFIX                                                            H0013220
      REAL ABS, SQRT                                                          H0013225
      DOUBLE PRECISION BVD, AVD, CVD, DVD, EVD, FVD, GVD                      H0013230
      DOUBLE PRECISION DPAFD,DPBFD,DPCFD,DPDFD,OPFFD,DPGFD,DPEFD,DPHFD        H0013235
     1  , DPAVD, DPBVD, DPCVD, DPDVD, DAWVD, DBWVO, DCWVD                     H0013240
      DOUBLE PRECISION DPA1D(5),FC2D(5,5)                                     H0013245
      COMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC, EP1C(30), AVC, BVC         H0013250
      COMPLEX CHAFC, CHBFC, CHCFC, CHDFC,CAWVC, CBWVC                         H0013255
      LOGICAL A3B(2,2,2)                                                      H0013260
      LOGICAL MCFVB, MCHVB, ABFB, BCFB, IEFB, KLFB                            H0013265
     -  ,MCEVB,MCIVB,MCKVB,ATVB,AWVB,BWVB,CWVB,DWVB,EWVB,SWVB,TWVB            H0013270
      DOUBLE PRECISION DBLE, DEXP                                             H0013275
      COMPLEX CMPLX, CEXP                                                     H0013280
C*****                                                                        H0013285
C*****  END OF SPECIFICATIONS FOR SEGMENTS                                    H0013290
C*****  094, 095, 096, 097, 098, 099, 100, 101, 102, 103, 110, 111            H0013295
C*******************************************************************************H0050010
C*****                                                                        H0050020
C*****                          BSFDF - (005)                                 H0050030
C*****                                                                        H0050040
C*******************************************************************************H0050050
C*****  GENERAL PURPOSE                                              ASA REF H0050060
C*****    DEFINING STATEMENT FUNCTIONS THAT ARE TO BE TESTED                  H0050070
C*****    IN SEGMENT 110 (BASIC FORTRAN) AND 111 (FULL FORTRAN)     8.1.1H0050080
C*****    HEADER FOR SEGMENT 005                                              H0050090
C*****    DEFINING EXPRESSION CONTAINS CONSTANTS AND VARIABLES                H0050100
      CMAFS(CAWVS,CBWVS) = CAWVS * 2. + CBWVS                                 H0050110
      CMBFS(MAWVI,MBWVI,MCWVI) =(MAWVI + MBWVI + MCWVI)/3                     H0050120
      MCAFI(MAWVI,MBWVI) = MAWVI ** MBWVI                                     H0050130
      MCBFI(CAWVS,CBWVS,CCWVS) = (CAWVS + CBWVS + CCWVS) * 2.0                H005014
C*****    DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES AND               H005015
C*****    INTRINSIC FUNCTIONS                                                 H0050160
      CMCFS(CAWVS,CBWVS,CCWVS) = ABS(CAWVS**2 - (CBWVS+CCWVS)**2)             H005017
      CMDFS(MAWVI,MBWVI) = ISIGN((MAWVI+MBWVI),(MAWVI-MBWVI))                 H0050180
      MCCFI(MAWVI,MBWVI,CAWVS) = MAWVI**2 + MBWVI**2 + IFIX(CAWVS)**2         H0050190
      MCOFI(CAWVS,CBWVS,CCWVS,CDWVS,CEWVS) = (CAWVS + CBWVS + CCWVS +         H0050200
     1CDWVS +CEWVS) ** (ABS(CAWVS))                                           H0050210
C*****    DEFINING EXPRESSION CONTAINS PREVIOUSLY DEFINED STATEMENT           H0050220
C*****    FUNCTIONS AND/OR EXTERNAL FUNCTION REFERENCES                       H0050230
      CMEFS(CAWVS,CBWVS) = CMBFS(1,2,3) + SQRT((CAWVS + CBWVS))               H0050240
      CMFFS(MAWVI,MBWVI,MCWVI) = MCCFI(MAWVI,MBWVI,3.0) + MCWVI **2           H0050250
      MCEFI(MAWVI,MBWVI) = MCAFI(MAWVI,MBWVI) ** MCAFI(MAWVI,MBWVI)           H0050260
      MCFFI(CAWVS,CBWVS,CCWVS) = SQRT(CAWVS) + SQRT(CBWVS) + EXP(CCWVS)       H0050270
C*****    DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES, INTRINSIC        H0050280
C*****    OR EXTERNAL FUNCTION REFERENCES AND PREVIOUSLY OEFINED              H0050290
C*****    STATEMENT FUNCTIONS.                                                H0050300
      CMGFS(MAWVI,MBWVI,CAWVS,CBWVS) = FLOAT(MAWVI ** 2) - CMAFS(CAWVS,       H0050310
     1CBWVS) + SQRT((FLOAT(MAWVI + MBWVI)))                                   H0050320
      MCGFI(MAWVI,MBWVI,MCWVI,CAWVS) = MCEFI(MAWVI,MBWVI) - MCEFI(MAWVI,      H0050330
     1MCWVI) + IFIX(EXP(CAWVS))                                               H0050340
C*****    END OF TEST SEGMENT 005                                             H0050350
C*******************************************************************************H0060010
C*****                                                                        H0060020
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C*****                          FSFDF - (006)                                  H0060030
C*****                                                                         H0060040
C*****************************************************************************H0060050
C*****  GENERAL PURPOSE                                          ASA REF H0060060
C*****     DEFINING STATEMENT FUNCTIONS THAT ARE TO BE TESTED       8.1.1H0060070
C*****     IN SEGMENT 111 (FULL FORTRAN STATEMENT FUNCTION TEST)          H0060080
C*****     HEADER FOR SEGMENT 006                                         H0060090
C*****     D.P. STATEMENT FUNCTIONS CONTAINING CONSTANTS AND VARIABLES    H0060100
      DPAFD(DAWVD,DBWVD) = (DAWVD + DBWVD) ** 2                           H0060110
      DPBFD(DAWVD,DBWVD,DCWVD) = (DAWVD + DBWVD - DCWVD) ** 3             H0060120
      DPCFD(DAWVD,DBWVD,DCWVD) = 3.0D0 *  (DAWVD + DBWVD + DCWVD)/2.D0    H0060130
C*****     D.P. STATEMENT FUNCTIONS CONTAINING CONSTANTS, VARIABLES        H0060140
C*****     AND INTRINSIC FUNCTION REFERENCES                              H0060150
      DPDFD(DAWVD,DBWVD) = DSIGN(DAWVD, -(DBWVD))                         H0060160
      DPEFD(DAWVD,DBWVD,CAWVC,CAWVS) = DBLE(CAWVS + AIMAG(CAWVC))         H0060170
     1+ DMAX1(DAWVD,DBWVD + 1.D0)                                         H0060180
C*****     D.P. STATEMENT FUNCTIONS CONTAINING CONSTANTS, VARIABLES,       H0060190
C*****     INTRINSIC FUNCTION AND PREVIOUSLY DEFINED STATEMENT FUNCTION    H0060200
C*****     REFERENCES                                                     H0060210
      DPFFD(DAWVD,DBWVD,CAWVS) = DPAFD(DAWVD,DBWVD) -(2.D0 * DAWVD *      H0060220
     1 DBWVD) + (DBLE(CAWVS) * 2.D0 )                                     H0060230
      DPGFD(DAWVD,DBWVD,CAWVS,CAWVC) = DPBFD(DAWVD,DBWVD,DBLE(CAWVS))     H0060240
     1 - DBLE(AIMAG(CAWVC)) + 5.0D0                                       H0060250
C*****     D.P. STATEMENT FUNCTIONS CONTAINING CONSTANTS, VARIABLES,       H0060260
C*****     INTRINSIC FUNCTION, PREVIOUSLY DEFINED STATEMENT FUNCTION      H0060270
C*****     AND EXTERNAL FUNCTION REFERENCES                               H0060280
      DPHFD(DAWVD,DBWVD,CAWVS) = DPFFD(DAWVD,DBWVD +1.0D0, CAWVS) * 2.D0H0060290
     1 + DEXP(DAWVD) - (DBLE(CAWVS) * 2 .D0)-DEXP(DAWVD)                  H0060300
C*****     COMPLEX STATEMENT FUNCTIONS CONTAINING CONSTANTS AND VARIABLESH0060310
      CHAFC(CAWVC,CBWVC) = CAWVC * (2.0,2.0) + CBWVC + (2.0,2.0)          H0060320
C*****     COMPLEX STATEMENT FUNCTION CONTAINING CONSTANTS, VARIABLES,     H0060330
C*****     AND INTRINSIC FUNCTION REFERENCES                              H0060340
      CHBFC(CAWVC,CBWVC,CAWVS) = CAWVC - CBWVC + CMPLX(CAWVS,CAWVS)       H0060350
C*****     COMPLEX STATEMENT FUNCTION CONTAINING CONSTANTS,               H0060360
C*****     VARIABLES, INTRINSIC AND EXTERNAL FUNCTION REFERENCES          H0060370
      CHCFC(CAWVC,CBWVC,CAWVS,CBWVS) = (CAWVC - CBWVC) + CEXP (CMPLX      H0060380
     1 (CAWVS,CBWVS)) -  CMPLX(CAWVS,CBWVS)                               H0060390
C*****     COMPLEX STATEMENT FUNCTION CONTAINING CONSTANTS, VARIABLES,     H0060400
C*****     INTRINSIC, EXTERNAL AND PREVIOUSLY DEFINED STATEMENT FUNCTION  H0060410
C*****     REFERENCES                                                     H0060420
      CHDFC(CAWVC,CBWVC,CAWVS,CBWVS) = CHCFC(CAWVC,CBWVC,CAWVS +CAWVS,    H0060430
     1 2.0 * CBWVS)  + CMPLX(1.0,2.0)                                     H0060440
C*****    STATEMENT FUNCTION CONTAINING LOGICAL VARIABLES                 H0060450
      ABFB(AWVB, BWVB, DWVB) = AWVB .AND. BWVB .OR. .FALSE..AND.DWVB      H0060460
C*****    STATEMENT FUNCTION CONTAINING CONSTANTS, VARIABLES AND          H0060470
C*****  INTRINSIC FUNCTIONS                                              H0060480
      BCFB(EWVB,CWVB,BAWVS,BCWVS) = EWVB .AND.(BAWVS * ABS(BCWVS) .GT.    H0060490
     1  0.5).AND..NOT. CWVB                                               H0060500
C*****  STATEMENT FUNCTION CONTAINING PREVIOUSLY DEFINED STATEMENT        H0060510
C*****     FUNCTION AND AN INTRINSIC FUNCTION REFERENCE                   H0060520
      IEFB(EWVB,ATVB,CWVB,BAWVS,BCWVS) = ATVB .AND.EWVB .AND. CWVB .OR.   H0060530
     1 AMAX1(BAWVS,BCWVS) .GT. 600. .OR.  BCFB (EWVB,CWVB,BAWVS,BCWVS)    H0060540
C*****  STATEMENT FUNCTION CONTAINING BASIC EXTERNAL FUNCTION REFERENCE   H0060550
      KLFB(SWVB,TWVB,ATVB,BAWVS) = SWVB .AND..NOT. TWVB.OR.(SQRT(BAWVS)   H0060560
     1  .GT. 9.0) .OR. ATVB                                               H0060570
C*****     END OF TEST SEGMENT 006                                        H0060580
C*****************************************************************************H0940010
C*****                                                                         H0940020
C*****                          TANGH - 094                                    H0940030
C*****                                                                         H0940040
C*****************************************************************************H0940050
C*****  GENERAL PURPOSE                                          ASA REFH0940060
C*****     TO TEST BASIC EXTERNAL FUNCTION - TANH -                 8.3.3  H0940070
C*****     HYPERBOLIC TANGENT -TYPE REAL                                  H0940080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS                          H0940090
C*****     INTRINSIC FUNCTIONS ABS,FLOAT,AMINO,AMAX0,INT                  H0940100
C*****     ASSUMED WORKING                                                H0940110
C*****     ARGUMENTS FROM 0.0 TO 8.0                                      H0940120
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C*****                                                                  H0940130
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS         H0940140
      IRVI = 5                                                          H0073200
      NUVI = 6                                                          H0073205
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0073210
      WRITE(NUVI,0071)                                                  H0073215
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0073220
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                  H0073225
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0073230
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0073235
     5 23H  VERSION 3     PART 8 ///)                                   H0073240
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER       H0073245
C       PREPARED BY USER                                                H0073250
C       READ, NO LIST                                                   H0073255
C       PREPARED BY USER                                                H0073260
C       READ, NO LIST                                                   H0073265
C       PREPAREO BY USER                                                H0073270
C       READ, NO LIST                                                   H0073275
      READ(IRVI,0070)                                                   H0073280
      REAO(IRVI,0072)                                                   H0073285
      REAO(IRVI,0073)                                                   H0073290
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)             H0073295
0072  FORMAT(40H   TEST PROGRAMS                         /)             H0073300
0073  FORMAT(40H   FORTRAN  COMPILER                     /)             H0073305
      WRITE(NUVI,0070)                                                  H0073310
      WRITE(NUVI,0072)                                                  H0073315
      WRITE(NUVI,0073)                                                  H0073320
940   FORMAT(15H1 TANGH - (094)//32H  BASIC EXTERNAL FUNCTION -TANH-    H0940150
     1//33H  (HYPERBOLIC TANGENT -TYPE REAL)                            H0940160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0940170
     3 HOLLERITH INFORMATION//9H  RESULTS)                              H0940180
      WRITE (NUVI, 940)                                                 H0940190
C*****    HEAOER FOR SEGMENT 094 WRITTEN                                H0940200
      AVS = 2.0                                                         H0940210
      CVS = -0.5                                                        H0940220
      IVI = 6                                                           H0940230
      BVS = TANH(FLOAT(IVI) - 3.0 * AVS)                                H0940240
      WRITE (NUVI, 941) BVS                                             H0940250
      BVS = TANH(AVS)                                                   H0940260
      WRITE (NUVI, 942) BVS                                             H0940270
      BVS = TANH(AVS + ABS(CVS))                                        H0940280
      WRITE (NUVI, 943) BVS                                             H0940290
      BVS = TANH(AMIN0(IVI,8) - AVS)                                    H0940300
      WRITE (NUVI, 944) BVS                                             H0940310
      BVS = TANH(AMAX0(IVI,INT(AVS)))                                   H0940320
      WRITE (NUVI, 945) BVS                                             H0940330
      BVS = TANH(AVS ** 4 / AVS)                                        H0940340
      WRITE (NUVI, 946) BVS                                             H0940350
      WRITE (NUVI, 947)                                                 H0940360
941   FORMAT(7H0 X=0.0,5X,12H0.0000000000 /F21.7)                       H0940370
942   FORMAT(7H0 X=2.0,5X,12H0.9640275801 /F21.7)                       H0940380
943   FORMAT(7H0 X=2.5,5X,12H0.9866142982 /F21.7)                       H0940390
944   FORMAT(7H0 X=4.0,5X,12H0.9993292997 /F21.7)                       H0940400
945   FORMAT(7H0 X=6.0,5X,12H0.9999877117 /F21.7)                       H0940410
946   FORMAT(7H0 X=8.0,5X,12H0.9999997749 /F21.7)                       H0940420
947   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0940430
     1 PRINTEO TO , 8H7 DIGITS )                                        H0940440
C*****    ENO OF TEST SEGMENT 094                                       H0940450
C*****  WHEN EXECUTING ONLY SEGMENT 094, THE  STOP  ANO  ENO  CAROS     H0940460
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0940470
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0940480
C=    STOP                                                              H0940490
C=    ENO                                                               H0940500
C*******************************************************************************H0950010
C*****                                                                  H0950020
C*****                          SQROT - (095)                           H0950030
C*****                                                                  H0950040
C*******************************************************************************H0950050
```

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C*****  GENERAL PURPOSE                                          ASA REFH0950060
C*****     TO TEST BASIC EXTERNAL FUNCTION - SQRT -              8.3.3  H0950070
C*****     (SQUARE ROOT - TYPE REAL)                             TABLE 4H0950080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS                        H0950090
C*****     INTRINSIC FUNCTIONS FLOAT,INT,AMIN0,MAX0                     H0950100
C*****     ASSUMED WORKING                                              H0950110
C*****     ARGUMENTS ARE ALL PRIME NUMBERS                              H0950120
C*****                                                                  H0950130
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0950140
C*****                                                                  H0073325
C*****  WHEN EXECUTING ONLY SEGMENT 095, THE FOLLOWING STATEMENT        H0073330
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          H0073335
C=     NUVI = 6                                                         H0073340
C*****                                                                  H0073345
950    FORMAT(15H1 SQROT - (095)//32H  BASIC EXTERNAL FUNCTION -SQRT-   H0950150
      1//26H  (SQUARE ROOT -TYPE REAL)                                  H0950160
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0950170
      3 HOLLERITH INFORMATION//9H  RESULTS)                             H0950180
       WRITE (NUVI, 950)                                                H0950190
C*****    HEADER FOR SEGMENT 095 WRITTEN                                H0950200
       AVS = 2.0                                                        H0950210
       IVI = 3                                                          H0950220
       CVS = 17.0                                                       H0950230
       BVS = SQRT(FLOAT(( IVI + INT(AVS)) / 2))                         H0950240
       WRITE (NUVI, 951) BVS                                            H0950250
       BVS = SQRT(AMIN0(MAX0(IVI,2), INT(CVS)))                         H0950260
       WRITE (NUVI, 952) BVS                                            H0950270
       BVS = SQRT(CVS)                                                  H0950280
       WRITE (NUVI, 953) BVS                                            H0950290
       BVS = SQRT(2.0 * CVS - FLOAT(IVI))                               H0950300
       WRITE (NUVI, 954) BVS                                            H0950310
       BVS = SQRT(FLOAT(IVI + 1) + 5.0 * CVS)                           H0950320
       WRITE (NUVI, 955) BVS                                            H0950330
       WRITE (NUVI, 956)                                                H0950340
951    FORMAT ( 8H0 X= 2.0,4X,16H1.41421356237310 / F21.7)              H0950350
952    FORMAT ( 8H0 X= 3.0,4X,16H1.73205080756888 / F21.7)              H0950360
953    FORMAT ( 8H0 X=17.0,4X,16H4.12310562561766 / F21.7)              H0950370
954    FORMAT ( 8H0 X=31.0,4X,16H5.56776436283002 / F21.7)              H0950380
955    FORMAT ( 8H0 X=89.0,4X,16H9.43398113205660 / F21.7)              H0950390
956    FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0950400
      1 PRINTED TO , 8H7 DIGITS )                                       H0950410
C*****    END OF TEST SEGMENT 095                                       H0950420
C*****  WHEN EXECUTING ONLY SEGMENT 095, THE  STOP  AND  END  CARDS     H0950430
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0950440
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0950450
C=     STOP                                                             H0950460
C=     END                                                              H0950470
C*******************************************************************************H0960010
C*****                                                                  H0960020
C*****                          DSQRO - (096)                           H0960030
C*****                                                                  H0960040
C*******************************************************************************H0960050
C*****  GENERAL PURPOSE                                          ASA REFH0960060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DSQRT -             8.3.3  H0960070
C*****     (SQUARE ROOT - TYPE D.P.)                             TABLE 4H0960080
C*****     USED IN SIMPLE EXPRESSIONS                                   H0960090
C*****     INTRINSIC FUNCTIONS DBLE,IABS,FLOAT ASSUMED WORKING          H0960100
C*****     ARGUMENTS ARE ALL PRIME NUMBERS                              H0960110
C*****                                                                  H0960120
C*****  S P E C I F I C A T I O N S  SEGMENT 096                        H0960130
C*****                                                                  H0013300
C*****  WHEN EXECUTING ONLY SEGMENT 096, THE SPECIFICATION STATEMENTS   H0013305
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                 H0013310
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0013315
C*****                                                                  H0013320
C=     DOUBLE PRECISION BVD                                             H0013325
C*****                                                                  H0013330
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0960140
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C*****                                                                  H0073350
C*****  WHEN EXECUTING ONLY SEGMENT 096, THE FOLLOWING STATEMENT        H0073355
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          H0073360
C=     NUVI = 6                                                         H0073365
C*****                                                                  H0073370
960    FORMAT(15H1 DSQRO - (096)//33H  BASIC EXTERNAL FUNCTION -DSQRT-  H0960150
      1//26H  (SQUARE ROOT -TYPE D.P.)                                  H0960160
      2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0960170
      3 HOLLERITH INFORMATION//9H  RESULTS)                             H0960180
       WRITE (NUVI, 960)                                                H0960190
C*****    HEADER FOR SEGMENT 096 WRITTEN                                H0960200
       AVS = 3.0                                                        H0960210
       IVI = -2                                                         H0960220
       CVS = 17.0                                                       H0960230
       BVD = DSQRT(DBLE(FLOAT(IABS(IVI)) + AVS - 3.0))                  H0960240
       WRITE (NUVI, 961) BVD                                            H0960250
       BVD = DSQRT(0.0D0 + AVS)                                         H0960260
       WRITE (NUVI, 962) BVD                                            H0960270
       BVD = DSQRT(CVS - AVS + 3.0D0)                                   H0960280
       WRITE (NUVI, 963) BVD                                            H0960290
       BVD = DSQRT(2.0D0 * CVS - DBLE(AVS))                             H0960300
       WRITE (NUVI, 964) BVD                                            H0960310
       BVD = DSQRT(DBLE(FLOAT(-IVI)+ AVS) * CVS + FLOAT(IVI ** 2))      H0960320
       WRITE (NUVI, 965) BVD                                            H0960330
       WRITE (NUVI, 966)                                                H0960340
961    FORMAT ( 8H0 X= 2.0,5X,25H1.41421356237309504880+00/8X,1PD24.13)  H0960350
962    FORMAT ( 8H0 X= 3.0,5X,25H1.73205080756887729350+00/8X,1PD24.13)  H0960360
963    FORMAT ( 8H0 X=17.0,5X,25H4.12310562561766054980+00/8X,1PD24.13)  H0960370
964    FORMAT ( 8H0 X=31.0,5X,25H5.56776436283002192210+00/8X,1PD24.13)  H0960380
965    FORMAT ( 8H0 X=89.0,5X,25H9.43398113205660381130+00/8X,1PD24.13)  H0960390
966    FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0960400
      A PRINTED TO ,9H14 DIGITS)                                        H0960410
C*****    END OF TEST SEGMENT 096                                       H0960420
C*****  WHEN EXECUTING ONLY SEGMENT 096, THE  STOP  AND  END  CARDS     H0960430
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0960440
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0960450
C=     STOP                                                             H0960460
C=     ENO                                                              H0960470
C************************************************************************H0970010
C*****                                                                  H0970020
C*****                          CSQRO - (097)                           H0970030
C*****                                                                  H0970040
C************************************************************************H0970050
C*****  GENERAL PURPOSE                                        ASA REF  H0970060
C*****                                                                  H0970070
C*****     TO TEST BASIC EXTERNAL FUNCTION  -CSQRT-             8.3.3  H0970080
C*****     (SQUARE ROOT OF A COMPLEX NUMBER )                   TABLE 4H0970090
C*****     ARGUMENTS ARE EP1C(11)  TO  EP1C(20)                        H0970100
C*****     EXPECTED RESULTS ARE EP1C(1)  TO  EP1C(10)                  H0970110
C*****  S P E C I F I C A T I O N S  SEGMENT 097                        H0970120
C*****                                                                  H0013335
C*****  WHEN EXECUTING ONLY SEGMENT 097 THE SPECIFICATION STATEMENTS    H0013340
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0013345
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0013350
C*****                                                                  H0013355
C=     COMPLEX EP1C(30), AVC, BVC                                       H0013360
C*****                                                                  H0013365
C*****  O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H0970130
C*****                                                                  H0073375
C*****  WHEN EXECUTING ONLY SEGMENT 097, THE FOLLOWING STATEMENT        H0073380
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.         H0073385
C=     NUVI = 6                                                         H0073390
C*****                                                                  H0073395
       WRITE (NUVI, 970)                                                H0970140
970    FORMAT(15H1 CSQRO - (097)//33H  BASIC EXTERNAL FUNCTION -CSQRT-  H0970150
      1//29H  (SQUARE ROOT -TYPE COMPLEX)//27H  ASA REF.- 8.3.3 (TABLE 4)H0970160
      2//24H  LINE 1 OF EACH PAIR IS /20H  THE EXPECTED VALUE //9H  RESULH0970170
      3T )                                                              H0970180
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C*****    INITIALIZE EP1C (EXACT VALUES)                                H0970190
      EP1C(1) = (0.9950042,0.0998334)                                   H0970200
      EP1C(2) = (0.9800666,0.1986693)                                   H0970210
      EP1C(3) = (0.9553365,0.2955202)                                   H0970220
      EP1C(4) = (0.9210610,0.3894183)                                   H0970230
      EP1C(5) = (0.8775826,0.4794255)                                   H0970240
      EP1C(6) = (0.8253356,0.5646425)                                   H0970250
      EP1C(7) = (0.7648422,0.6442177)                                   H0970260
      EP1C(8) = (0.6967067,0.7173561)                                   H0970270
      EP1C(9) = (0.5403023,0.8414710)                                   H0970280
      EP1C(10) = (0.4161468,-0.9092974)                                 H0970290
      EP1C(11) = (0.9800666,0.1986693)                                  H0970300
      EP1C(12) = (0.9210610,0.3894183)                                  H0970310
      EP1C(13) = (0.8253356,0.5646425)                                  H0970320
      EP1C(14) = (0.6967067,0.7173561)                                  H0970330
      EP1C(15) = (0.5403023,0.8414710)                                  H0970340
      EP1C(16) = (0.3623577,0.9320391)                                  H0970350
      EP1C(17) = (0.1699671,0.9854497)                                  H0970360
      EP1C(18) = (-0.0291995,0.9995736)                                 H0970370
      EP1C(19) = (-0.4161468,0.9092974)                                 H0970380
      EP1C(20) = (-0.6536436,-0.7568025)                                H0970390
      IVI = 0                                                           H0970400
971   JVI = 1                                                           H0970410
972   IVI = IVI + 1                                                     H0970420
      JVI = JVI + 1                                                     H0970430
      AVC = CSQRT(EP1C(IVI + 10) * (10. ** ((2 * JVI) - 8)))            H0970440
      BVC =  EP1C(IVI) * 10. ** (JVI - 4)                               H0970450
      WRITE (NUVI, 973) BVC, AVC                                        H0970460
973   FORMAT( 2H0 2E14.7/2X,2E14.7)                                     H0970470
      IF (JVI - 6) 972, 974, 974                                        H0970480
974   IF (IVI - 10) 971, 975, 975                                       H0970490
975   WRITE (NUVI, 976)                                                 H0970500
976   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/13H  CALCULATIONH0970510
     1)                                                                 H0970520
C*****    END OF TEST SEGMENT 097                                       H0970530
C*****  WHEN EXECUTING ONLY SEGMENT 097 THE STOP AND END CARDS          H0970540
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0970550
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0970560
C=    STOP                                                              H0970570
C=    END                                                               H0970580
C******************************************************************************H0980010
C*****                                                                 H0980020
C*****                          ARCTG - (098)                          H0980030
C*****                                                                 H0980040
C******************************************************************************H0980050
C*****  GENERAL PURPOSE                                        ASA REFH0980060
C*****     TO TEST BASIC EXTERNAL FUNCTION - ATAN -              8.3.3  H0980070
C*****     (TRIGONOMETRIC ARCTANGENT, SINGLE ARGUMENT -TYPE REAL)TABLE 4H0980080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS                       H0980090
C*****     INTRINSIC FUNCTION ABS,FLOAT,AMAX1,INT                      H0980100
C*****       ASSUMED WORKING                                           H0980110
C*****     ARGUMENTS ARE POWERS (OR SUMS) OF 2                         H0980120
C*****                                                                 H0980130
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0980140
C*****                                                                 H0073400
C*****  WHEN EXECUTING ONLY SEGMENT 098, THE FOLLOWING STATEMENT       H0073405
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.        H0073410
C=    NUVI = 6                                                          H0073415
C*****                                                                 H0073420
      WRITE (NUVI, 980)                                                 H0980150
980   FORMAT(15H1 ARCTG - (098)//32H  BASIC EXTERNAL FUNCTION -ATAN-    H0980160
     1//25H  (ARCTANGENT -TYPE REAL)                                    H0980170
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0980180
     3 HOLLERITH INFORMATION//9H  RESULTS)                              H0980190
 *****    HEADER FOR SEGMENT 098 WRITTEN                                H0980200
      AVS = .125                                                        H0980210
      CVS = -.25                                                        H0980220
      IVI = 2                                                           H0980230
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      BVS = ATAN(AMAX1(AVS,CVS))                                        H0980240
      WRITE (NUVI, 981) BVS                                             H0980250
      BVS = ATAN(AVS * 2.0)                                             H0980260
      WRITE(NUVI, 982) BVS                                              H0980270
      BVS = ATAN (ABS(CVS) + AVS)                                       H0980280
      WRITE(NUVI, 983) BVS                                              H0980290
      BVS = ATAN(-CVS * AMAX0(IVI, INT(AVS)))                           H0980300
      WRITE(NUVI, 984) BVS                                              H0980310
      BVS = ATAN (FLOAT(IVI) * CVS - (2.0 * AVS))                       H0980320
      WRITE (NUVI, 985) BVS                                             H0980330
      BVS = ATAN(1.0)                                                   H0980340
      WRITE (NUVI, 986) BVS                                             H0980350
      WRITE (NUVI, 987)                                                 H0980360
981   FORMAT(10H0 X= 0.125,5X,15H 0.124354994547,/10X,F15.7)            H0980370
982   FORMAT(10H0 X= 0.250,5X,15H 0.244978663127,/10X,F15.7)            H0980380
983   FORMAT(10H0 X= 0.375,5X,15H 0.358770670271,/10X,F15.7)            H0980390
984   FORMAT(10H0 X= 0.500,5X,15H 0.463647609001,/10X,F15.7)            H0980400
985   FORMAT(10H0 X=-0.750,5X,15H-0.643501108793,/10X,F15.7)            H0980410
986   FORMAT(10H0 X= 1.000,5X,15H 0.785398163397,/10X,F15.7)            H0980420
987   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0980430
     1 PRINTED TO ,8H7 DIGITS )                                         H0980440
C*****    END OF TEST SEGMENT 098                                       H0980450
C*****  WHEN EXECUTING ONLY SEGMENT 098, THE STOP AND END CARDS         H0980460
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0980470
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0980480
C=    STOP                                                              H0980490
C=    END                                                               H0980500
C*************************************************************************H0990010
C*****                                                                 H0990020
C*****                          DACTG - (099)                          H0990030
C*****                                                                 H0990040
C*************************************************************************H0990050
C*****  GENERAL PURPOSE                                        ASA REFH0990060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DATAN -           8.3.3  H0990070
C*****     (TRIGONOMETRIC ARCTANGENT,SINGLE ARGUMENT -TYPE D.P.) TABLE 4H0990080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS                       H0990090
C*****     INTRINSIC FUNCTIONS DSIGN,FLOAT,DBLE ASSUMED WORKING        H0990100
C*****     ARGUMENTS ARE POWERS (OR SUMS) OF 2                         H0990110
C*****                                                                 H0990120
C*****  S P E C I F I C A T I O N S  SEGMENT 099                       H0990130
C*****                                                                 H0013370
C*****  WHEN EXECUTING ONLY SEGMENT 099, THE SPECIFICATION STATEMENTS  H0013375
C*****  WHICH APPEAR AS COMMENT CARDS  MUST HAVE THE C=                H0013380
C*****  IN COLUMNS 1  AND  2 REMOVED.                                  H0013385
C*****                                                                 H0013390
C=    DOUBLE PRECISION AVD, BVD, CVD                                    H0013395
C*****                                                                 H0013400
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H0990140
C*****                                                                 H0073425
C*****  WHEN EXECUTING ONLY SEGMENT 099, THE FOLLOWING STATEMENT       H0073430
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0073435
C=    NUVI = 6                                                          H0073440
C*****                                                                 H0073445
C*****     HEADER FOR SEGMENT 099 WRITTEN                              H0990150
      WRITE(NUVI, 990)                                                  H0990160
990   FORMAT(15H1 DACTG - (099)//33H  BASIC EXTERNAL FUNCTION -DATAN-   H0990170
     1//25H  (ARCTANGENT -TYPE D.P.)                                    H0990180
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H0990190
     3 HOLLERITH INFORMATION//9H  RESULTS)                              H0990200
      AVD = -.125D0                                                     H0990210
      CVD = .25D0                                                       H0990220
      IVI = 2                                                           H0990230
      BVD = DATAN(DSIGN(AVD,CVD))                                       H0990240
      WRITE (NUVI, 991) BVD                                             H0990250
      BVD = DATAN(2.0 * (-AVD))                                         H0990260
      WRITE(NUVI, 992) BVD                                              H0990270
      BVD = DATAN(CVD - AVD)                                            H0990280
      WRITE(NUVI, 993) BVD                                              H0990290
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      BVD = DATAN(DBLE(FLOAT(IVI) / 4.0))                               H0990300
      WRITE (NUVI, 994) BVD                                             H0990310
      BVD = DATAN (DSIGN(1.0D0 - CVD, AVD))                             H0990320
      WRITE(NUVI, 995) BVD                                              H0990330
      BVD = DATAN(DBLE(FLOAT(IVI ** 2)) * CVD)                          H0990340
      WRITE (NUVI, 996) BVD                                             H0990350
      WRITE (NUVI, 997)                                                 H0990360
991   FORMAT(10H0 X= 0.125,5X,19H 0.124354994547D+00 /10X,D24.12)       H0990370
992   FORMAT(10H0 X= 0.250,5X,19H 0.244978663127D+00 /10X,D24.12)       H0990380
993   FORMAT(10H0 X= 0.375,5X,19H 0.358770670271D+00 /10X,D24.12)       H0990390
994   FORMAT(10H0 X= 0.500,5X,19H 0.463647609001D+00 /10X,D24.12)       H0990400
995   FORMAT(10H0 X=-0.750,5X,19H-0.643501108793D+00 /10X,D24.12)       H0990410
996   FORMAT(10H0 X= 1.000,5X,19H 0.785398163397D+00 /10X,D24.12)       H0990420
997   FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH0990430
     1 PRINTED TO ,9H12 DIGITS )                                        H0990440
C*****    END OF TEST SEGMENT 099                                       H0990450
C*****  WHEN EXECUTING ONLY SEGMENT 099, THE STOP AND END CARDS         H0990460
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0990470
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0990480
C=    STOP                                                              H0990490
C=    END                                                               H0990500
C******************************************************************************H1000010
C*****                                                                 H1000020
C*****                    ACTG2 - (100)                                H1000030
C*****                                                                 H1000040
C******************************************************************************H1000050
C*****  GENERAL PURPOSE                                        ASA REFH1000060
C*****     TO TEST BASIC EXTERNAL FUNCTION - ATAN2 -           8.3.3  H1000070
C*****     (TRIGONOMETRIC ARCTANGENT, TWO ARGUMENTS -TYPE REAL) TABLE 4H1000080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS                       H1000090
C*****     INTRINSIC FUNCTIONS AMIN1,FLOAT,AMAX0  ASSUMED WORKING      H1000100
C*****     ARGUMENTS ARE POWERS (OR SUMS) OF 2                         H1000110
C*****                                                                 H1000120
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENTS.  NO INPUT TAPE.    H1000130
C*****                                                                 H0073450
C*****  WHEN EXECUTING ONLY SEGMENT 100, THE FOLLOWING STATEMENT       H0073455
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.        H0073460
C=    NUVI = 6                                                          H0073465
C*****                                                                 H0073470
      WRITE(NUVI, 1000)                                                 H1000140
1000  FORMAT(15H1 ACTG2 - (100)//33H  BASIC EXTERNAL FUNCTION -ATAN2-   H1000150
     1//37H  (ARCTANGENT, 2 ARGUMENT -TYPE REAL)                        H1000160
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H H1000170
     3 HOLLERITH INFORMATION//9H  RESULTS)                              H1000180
      AVS = .125                                                        H1000190
      CVS = -.25                                                        H1000200
      IVI = 2                                                           H1000210
      BVS = ATAN2(ABS(AMIN1(AVS,CVS)),FLOAT(IVI))                       H1000220
      WRITE (NUVI, 1001) BVS                                            H1000230
      BVS = ATAN2(CVS ** 2, AVS * 2.0)                                  H1000240
      WRITE (NUVI, 1002) BVS                                            H1000250
      BVS = ATAN2 (AVS - CVS, -(4.0 * CVS))                             H1000260
      WRITE (NUVI, 1003) BVS                                            H1000270
      BVS = ATAN2(-CVS/AVS, AMAX0(IVI,4))                               H1000280
      WRITE (NUVI, 1004) BVS                                            H1000290
      BVS = ATAN2(-.09375,AVS)                                          H1000300
      WRITE (NUVI, 1005) BVS                                            H1000310
      BVS = ATAN2(FLOAT(IVI), 2.0)                                      H1000320
      WRITE (NUVI, 1006) BVS                                            H1000330
      WRITE (NUVI, 1007)                                                H1000340
1001  FORMAT(10H0 X= 0.125,5X,15H 0.124354994547,/10X,F15.7)            H1000350
1002  FORMAT(10H0 X= 0.250,5X,15H 0.244978663127,/10X,F15.7)            H1000360
1003  FORMAT(10H0 X= 0.375,5X,15H 0.358770670271,/10X,F15.7)            H1000370
1004  FORMAT(10H0 X= 0.500,5X,15H 0.463647609001,/10X,F15.7)            H1000380
1005  FORMAT(10H0 X=-0.750,5X,15H-0.643501108793,/10X,F15.7)            H1000390
1006  FORMAT(10H0 X= 1.000,5X,15H 0.785398163397,/10X,F15.7)            H1000400
1007  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATIONH1000410
     1 PRINTED TO ,8H7 DIGITS )                                         H1000420
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C*****    END OF TEST SEGMENT 100                                              H1000430
C*****  WHEN EXECUTING DNLY SEGMENT 100, THE STOP AND END CARDS                H1000440
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                         H1000450
C*****  IN CDLUMNS  1  AND  2  REMOVED.                                        H1000460
C=    STDP                                                                    H1000470
C=    END                                                                     H1000480
C************************************************************************     H1010010
C*****                                                                        H1010020
C*****                    DATN2 - (101)                                       H1010030
C*****                                                                        H1010040
C************************************************************************     H1010050
C*****  GENERAL PURPOSE                                          ASA REF      H1010060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DATAN2 -             8.3.3       H1010070
C*****     (TRIGONOMETRIC ARCTANGENT, TWO ARGUMENT -TYPE D.P.)    TABLE 4     H1010080
C*****     USED IN SIMPLE ARITHMETIC EXPRESSIONS                              H1010090
C*****     INTRINSIC FUNCTIDNS DMIN1,DMAX1,DSIGN,DBLE,FLOAT                   H1010100
C*****    ASSUMED WORKING                                                     H1010110
C*****     ARGUMENTS ARE POWERS (OR SUMS) OF 2                                H1010120
C*****                                                                        H1010130
C*****  S P E C I F I C A T I O N S  SEGMENT 101                               H1010140
C*****                                                                        H0013405
C*****  WHEN EXECUTING ONLY SEGMENT 101, THE SPECIFICATION STATEMENTS         H0013410
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=  IN COLUMNS            H0013415
C*****  1  AND  2  REMOVED.                                                   H0013420
C*****                                                                        H0013425
C=    DDUBLE PRECISION AVD, BVD, CVD                                          H0013430
C*****                                                                        H0013435
C*****  D U T P U T - T A P E  ASSIGNMENT STATEMENT.  ND INPUT TAPE           H1010150
C*****                                                                        H0073475
C*****  WHEN EXECUTING DNLY SEGMENT 101, THE FOLLOWING STATEMENT              H0073480
C*****  NUVI = 6  MUST HAVE THE C=  IN CDLUMNS 1 AND 2 REMOVED.               H0073485
C=    NUVI = 6                                                                H0073490
C*****                                                                        H0073495
      WRITE (NUVI, 1010)                                                      H1010160
1010  FORMAT(15H1 DATN2 - (101)//36H  BASIC EXTERNAL FUNCTIDN -DATAN2-        H1010170
     1//37H  (ARCTANGENT, 2 ARGUMENT -TYPE D.P.)                              H1010180
     2//27H  ASA REF.- 8.3.3 (TABLE 4)//24H  LINE 1 OF EACH PAIR IS/23H       H1010190
     3 HOLLERITH INFORMATION//9H  RESULTS)                                    H1010200
      AVD = .125                                                              H1010210
      CVD = -.25                                                              H1010220
      IVI = 2                                                                 H1010230
      BVD = DATAN2( DMIN1( AVD,-CVD), 2.0D0/ DBLE(FLOAT(IVI)))                H1010240
      WRITE (NUVI, 1011) BVD                                                  H1010250
      BVD = DATAN2( AVD, FLOAT( IVI) * (-CVD))                                H1010260
      WRITE (NUVI, 1012) BVD                                                  H1010270
      BVD = DATAN2 (DSIGN(2.0D0 * CVD + AVD, AVD), DMAX1(AVD,CVD,1.0D0))      H1010280
      WRITE (NUVI, 1013) BVD                                                  H1010290
      BVD = DATAN2(DMIN1(AVD,.0625D0),DMAX1(AVD,CVD))                         H1010300
      WRITE (NUVI, 1014) BVD                                                  H1010310
      BVD = DATAN2(DABS(CVD) * DSIGN(AVD, CVD) * 6.D0, .25D0)                 H1010320
      WRITE (NUVI, 1015) BVD                                                  H1010330
      BVD = DATAN2 (DBLE(FLDAT(IVI)),AVD * FLDAT(IVI **4))                    H1010340
      WRITE (NUVI, 1016) BVD                                                  H1010350
      WRITE (NUVI, 1017)                                                      H1010360
1011  FDRMAT(10H0 X= 0.125,5X,19H 0.124354994547D+00 /10X,D24.12)             H1010370
1012  FDRMAT(10H0 X= 0.250,5X,19H 0.244978663127D+00 /10X,D24.12)             H1010380
1013  FORMAT(10H0 X= 0.375,5X,19H 0.358770670271D+00 /10X,D24.12)             H1010390
1014  FDRMAT(10H0 X= 0.500,5X,19H 0.463647609001D+00 /10X,D24.12)             H1010400
1015  FORMAT(10H0 X=-0.750,5X,19H-0.643501108793D+00 /10X,D24.12)             H1010410
1016  FORMAT(10H0 X= 1.000,5X,19H 0.785398163397D+00 /10X,D24.12)             H1010420
1017  FORMAT(//37H  LINE 2 OF EACH PAIR IS THE FUNCTION/25H  CALCULATION      H1010430
     1 PRINTED TO ,9H12 DIGITS )                                              H1010440
C*****    END OF TEST SEGMENT 101                                             H1010450
C*****  WHEN EXECUTING DNLY SEGMENT 101  THE STOP AND END CARDS               H1010460
C*****  WHICH APPEAR AS COMMENT CARDS  MUST HAVE THE C=                       H1010470
C*****  IN CDLUMNS  1  AND  2  REMDVED.                                       H1010480
C=    STOP                                                                    H1010490
C=    END                                                                     H1010500
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C*****************************************************************************H1020010
C*****                                                                        H1020020
C*****                          DMODA - (102)                                 H1020030
C*****                                                                        H1020040
C*****************************************************************************H1020050
C*****  GENERAL PURPOSE                                              ASA REFH1020060
C*****     TO TEST BASIC EXTERNAL FUNCTION - DMOD -                   8.3.3  H1020070
C*****     (REMAINDERING -TYPE OOUBLE PRECISION)                      TABLE 4H1020080
C*****     INTRINSIC FUNCTIONS DBLE,FLOAT,IDINT, ASSUMED WORKING             H1020090
C*****                                                                        H1020100
C*****  S P E C I F I C A T I O N S  SEGMENT 102                              H1020110
C*****                                                                        H0013440
C*****  WHEN EXECUTING ONLY SEGMENT 102, THE SPECIFICATION STATEMENTS         H0013445
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                       H0013450
C*****  IN COLUMNS  1  AND  2  REMOVED.                                      H0013455
C*****                                                                        H0013460
C=     DOUBLE PRECISION AVD,BVD,CVD,DVD,EVD,FVD,GVD                          H0013465
C*****                                                                        H0013470
C*****  O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.          H1020120
C*****                                                                        H0073500
C*****  WHEN EXECUTING ONLY SEGMENT 102 THE FOLLOWING STATEMENT               H0073505
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS  1  AND  2  REMOVED.           H0073510
C=     NUVI = 6                                                              H0073515
C*****                                                                        H0073520
       WRITE (NUVI, 1020)                                                    H1020130
1020   FORMAT(15H1 OMODA - (102)//32H  BASIC EXTERNAL FUNCTION -DMOD-        H1020140
      1//39H  (REMAINOERING -TYPE DOUBLE PRECISION)//27H  ASA REF.- 8.3.3H1020150
      2 (TABLE 4)// 9H  RESULTS)                                            H1020160
       AVO = 16.0625D0                                                      H1020170
       BVO = -4.000                                                         H1020180
       CVD = -8.12500                                                       H1020190
       OVO = 2.5D0                                                          H1020200
       EVD = -1.0D0                                                         H1020210
       FVD =  1.0D0                                                         H1020220
       FVO = OMOO(AVO, BVO)                                                 H1020230
       GVO = FVO - 0.062500                                                 H1020240
       WRITE (NUVI, 1021) GVO                                               H1020250
       FVO = 2.000                                                          H1020260
       FVO = OMOO(CVO, DVO)                                                 H1020270
       GVD = FVD + 0.62500                                                  H1020280
       WRITE (NUVI, 1021) GVO                                               H1020290
       FVD = 3.000                                                          H1020300
       FVD = DMOD(BVD, EVD)                                                 H1020310
       GVO = FVO + 0.0D0                                                    H1020320
       WRITE (NUVI, 1021) GVD                                               H1020330
       FVO = 4.000                                                          H1020340
       FVO = OMOO(BVO, AVO)                                                 H1020350
       GVD = FVD - (BVD-(DBLE(FLOAT(IDINT(BVD/AVD)))) * AVD)                H1020360
       WRITE (NUVI, 1021) GVD                                               H1020370
       WRITE (NUVI, 1022)                                                   H1020380
1021   FORMAT(//D25.14)                                                     H1020390
1022   FORMAT(//18H  END OF DMOO TEST//40H  ALL ABOVE ANSWERS SHOULD BE 0H1020400
      1 FOR THIS/32H  TEST SEGMENT TO BE SUCCESSFUL.)                       H1020410
C*****    ENO OF TEST SEGMENT 102                                          H1020420
C*****  WHEN EXECUTING ONLY SEGMENT 102  THE STOP AND END CARDS             H1020430
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                     H1020440
C*****  IN COLUMNS  1  AND 2  REMOVEO.                                      H1020450
C=     STOP                                                                 H1020460
C=     END                                                                  H1020470
C*****************************************************************************H1030010
C*****                                                                        H1030020
C*****                          CABSA - (103)                                 H1030030
C*****                                                                        H1030040
C*****************************************************************************H1030050
C*****  GENERAL PURPOSE                                              ASA REFH1030060
C*****     .TO TEST BASIC EXTERNAL FUNCTION  -CABS-                   8.3.3  H1030070
C*****     (MOOULUS OF A COMPLEX NUMBER)                              TABLE 4H1030080
C*****     ARGUMENTS ARE ARRAY EP1C(30), FUNCTIONS FROM                      H1030090
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C*****       ODD NUMBERED ARGUMENTS PRINTED AS SET 1 AND 2                  H1030100
C*****       FROM EVEN NUMBERED ARGUMENTS                                   H1030110
C*****       SET 1 RESULTS SHOULD BE .1 E-6 TO .1 E+8                       H1030120
C*****       SET 2 RESULTS SHOULD BE .5 E-6 TO .5 E+8                       H1030130
C*****                                                                      H1030140
C*****  S P E C I F I C A T I O N S  SEGMENT 103                            H1030150
C*****                                                                      H0013475
C*****  WHEN EXECUTING ONLY SEGMENT 103  THE SPECIFICATION STATEMENTS       H0013480
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                      H0013485
C*****  IN COLUMNS  1  AND  2  REMOVED.                                     H0013490
C*****                                                                      H0013495
C=     COMPLEX EP1C(30)                                                     H0013500
C*****                                                                      H0013505
C*****  O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        H1030160
C*****                                                                      H0073525
C*****  WHEN EXECUTING ONLY SEGMENT 103 THE FOLLOWING STATEMENT             H0073530
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS  1 AND 2 REMOVED.             H0073535
C=     NUVI = 6                                                             H0073540
C*****                                                                      H0073545
       WRITE (NUVI, 1030)                                                   H1030170
1030   FORMAT(15H1 CABSA - (103)//32H  BASIC EXTERNAL FUNCTION -CABS-       H1030180
      1//31H  (MODULUS OF A COMPLEX NUMBER)//27H  ASA REF.- 8.3.3 (TABLE    H1030190
      24)//9H  RESULTS//10X,5HSET 1,15X,5HSET 2 )                           H1030200
C*****INITIALIZE EP1C(EXACT VALUES)                                         H1030210
       EP1C(1) = (0.5E-7,-0.866025E-7)                                      H1030220
       EP1C(2) = (2.5E-7,-4.330125E-7)                                      H1030230
       EP1C(3) = (1.E-6,0.0)                                                H1030240
       EP1C(4) = (5.E-6,0.0)                                                H1030250
       EP1C(5) = (0.5E-5,0.866025E-5)                                       H1030260
       EP1C(6) = (2.5E-5,4.330125E-5)                                       H1030270
       EP1C(7) = (-0.5E-4,0.866025E-4)                                      H1030280
       EP1C(8) = (-2.5E-4,4.330125E-4)                                      H1030290
       EP1C(9) = (-1.E-3,0.0)                                               H1030300
       EP1C(10) = (-5.E-3,0.0)                                              H1030310
       EP1C(11) = (-0.5E-2,-0.866025E-2)                                    H1030320
       EP1C(12) = (-2.5E-2,-4.330125E-2)                                    H1030330
       EP1C(13) = (0.5E-1,-0.866025E-1)                                     H1030340
       EP1C(14) = (2.5E-1,-4.330125E-1)                                     H1030350
       EP1C(15) = (1.0,0.0)                                                 H1030360
       EP1C(16) = (5.0,0.0)                                                 H1030370
       EP1C(17) = (0.5E1,0.866025E1)                                        H1030380
       EP1C(18) = (2.5E1,4.330125E1)                                        H1030390
       EP1C(19) = (-0.5E2,0.866025E2)                                       H1030400
       EP1C(20) = (-2.5E2,4.330125E2)                                       H1030410
       EP1C(21) = (-1.E3,0.0)                                               H1030420
       EP1C(22) = (-5.E3,0.0)                                               H1030430
       EP1C(23) = (-0.5E4,-0.866025E4)                                      H1030440
       EP1C(24) = (-2.5E4,-4.330125E4)                                      H1030450
       EP1C(25) = (0.5E5,-0.866025E5)                                       H1030460
       EP1C(26) = (2.5E5,-4.330125E5)                                       H1030470
       EP1C(27) = (1.E6,0.0)                                                H1030480
       EP1C(28) = (5.E6,0.0)                                                H1030490
       EP1C(29) = (0.5E7,0.866025E7)                                        H1030500
       EP1C(30) = (2.5E7,4.330125E7)                                        H1030510
       IVI = - 1                                                            H1030520
1031   IVI = IVI + 2                                                        H1030530
       AVS = CABS (EP1C(IVI))                                               H1030540
       BVS = CABS (EP1C(IVI + 1))                                           H1030550
       WRITE (NUVI, 1032) AVS, BVS                                          H1030560
1032   FORMAT(1H0, E17.6, 2X, E17.6)                                        H1030570
       IF (IVI - 29) 1031, 1033, 1033                                       H1030580
1033   WRITE (NUVI, 1034)                                                   H1030590
1034   FORMAT(//39H  VALUES IN EACH SET SHOULD BE POSITIVE /39H  .1 FOR SH  H1030600
      1ET 1 (.5 FOR SET 2), EXPONENT /35H  RANGE FROM -06 TO +08 IN SEQUE   H1030610
      2NCE )                                                                H1030620
C*****    END OF TEST SEGMENT 103                                           H1030630
C*****  WHEN EXECUTING ONLY SEGMENT 103  THE STOP AND END CARDS             H1030640
C*****  WHICH APPEAR AS COMMENT CARDS  MUST HAVE THE C=                     H1030650
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C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H1030660
C=     STOP                                                              H1030670
C=     END                                                               H1030680
C*****************************************************************************H1100010
C*****                                                                   H1100020
C*****                          BSFTS - (110)                            H1100030
C*****                                                                   H1100040
C*****************************************************************************H1100050
C*****  GENERAL PURPOSE                                          ASA REF H1100060
C*****    TEST OF ALL STATEMENT FUNCTIONS THAT HAVE BEEN DEFINED         H1100070
C*****    IN TEST SEGMENT 005                                  8.1.2H1100080
C*****  GENERAL COMMENTS                                                 H1100090
C*****    INTRINSIC AND EXTERNAL FUNCTIONS ASSUMED WORKING               H1100100
C*****  INTRINSIC AND BASIC EXTERNAL FUNCTIONS DECLARED IN A     10.1.7 H1100110
C*****  TYPE STATEMENT OF SAME TYPE AS TABLES 3 AND 4              5.3 H1100120
C*****                                                                   H1100130
C*****  S P E C I F I C A T I O N S  SEGMENT 110                         H1100140
C*****                                                                   H0013510
C*****  WHEN EXECUTING ONLY SEGMENT 110, THE SPECIFICATION STATEMENTS    H0013515
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0013520
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0013525
C*****                                                                   H0013530
C=     INTEGER IFIX                                                      H0013535
C=     REAL  ABS, SQRT                                                   H0013540
C*****                                                                   H0013545
C*****  WHEN EXECUTING ONLY SEGMENT 110, THE SEGMENT 005, WHICH          H1100150
C*****  CONTAINS THE STATEMENT FUNCTIONS BEING TESTED HERE MUST BE       H1100160
C*****  INSERTED AFTER THE SPECIFICATION STATEMENTS OF SEGMENT 110.      H1100170
C*****                                                                   H1100180
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H1100190
C*****                                                                   H0073550
C*****  WHEN EXECUTING ONLY SEGMENT 110, THE FOLLOWING STATEMENT         H0073555
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           H0073560
C=     NUVI = 6                                                          H0073565
C*****                                                                   H0073570
      WRITE (NUVI,1100)                                                  H1100200
1100  FORMAT(39H1 BSFTS - (110) STATEMENT FUNCTION TEST/23X,16HINTEGER AH1100210
     1ND REAL//18H  ASA REF. - 8.1.2// 9H  RESULTS)                      H1100220
C*****    HEADER FOR SEGMENT 110 WRITTEN                                 H1100230
      CMAVS = 9.0 - CMAFS(2.0, 3.0 + 2.0)                                H1100240
      CMBVS = CMBFS(2/2, 1+1, 1*3) -2.0                                  H1100250
      MCAVI = MCAFI(IFIX(5.0),5) - (5 ** 5)                              H1100260
      MCBVI = MCBFI(1.0,2.0,3.0) - MCAFI(6,2) + 24                       H1100270
      WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                       H1100280
      CMAVS = CMCFS(4.0,2.0,2.0)                                         H1100290
      CMBVS = CMDFS(-1,-4) - 5.0                                         H1100300
      MCAVI = MCCFI(9*2/18, (4**2)/8, 3.0) - 14                          H1100310
      MCBVI = MCDFI(1.,2.1,3.,4.,5.) -15                                 H1100320
      WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                       H1100330
      CMAVS = CMEFS(2.0,1.0 * 2.0) - 4.0                                 H1100340
      MCAVI = 3                                                          H1100350
      CMBVS = CMFFS(1,2, MCAVI) - 23.                                    H1100360
      MCAVI = MCEFI(2,2) - (4 ** 4)                                      H1100370
      MCBVI = MCFFI(9.0,4.0,CMBVS * CMBVS * 0.0) - 6                     H1100380
      WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                       H1100390
      CMAVS = CMGFS(3,13,2.0,5.0) - 4.0                                  H1100400
      CMBVS = CMGFS(IFIX(SQRT(CMAFS(2.,5.))),IFIX(CMFFS(1,2,3) -10.),    H1100410
     1 CMBFS(1,2,3), CMDFS(-1,-4)) - 4.0                                 H1100420
      MCAVI = MCGFI(2,2,2,0.0) - 1                                       H1100430
      MCBVI = MCGFI(MCAFI(2,1), MCBFI(1.0,0.,.0), IFIX(SQRT(CMGFS(3,13,  H1100440
     12.0,5.0))),EXP(0.0) - 1.0)-1                                       H1100450
      WRITE (NUVI,1108) CMAVS, CMBVS, MCAVI, MCBVI                       H1100460
      WRITE (NUVI,1109)                                                  H1100470
1108  FORMAT ( /2(F20.10 /),2(I19/ ))                                    H1100480
1109  FORMAT ( /36H  ALL ABOVE ANSWERS SHOULD BE 0 FOR /                 H1100490
     137H  THIS TEST SEGMENT TO BE SUCCESSFUL.)                          H1100500
C*****    END OF TEST SEGMENT 110                                        H1100510
C*****  WHEN EXECUTING ONLY SEGMENT 110, THE  STOP  AND  END  CARDS      H1100520
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C*****  WHICH APPEAR AS CDMMENT CARDS MUST HAVE THE  C=                    H1100530
C*****  IN CDLUMNS  1  AND  2  REMDVED.                                   H1100540
C=     STDP                                                               H1100550
C=     END                                                                H1100560
C*******************************************************************************H1110010
C*****                                                                    H1110020
C*****                          FSFTS - (111)                             H1110030
C*****                                                                    H1110040
C*******************************************************************************H1110050
C*****  GENERAL PURPDSE                                          ASA REF H1110060
C*****    TEST STATEMENT FUNCTIDNS THAT HAVE BEEN DEFINED IN       8.1.2H1110070
C*****    SEGMENT 006 (FDR FULL FDRTRAN TEST DNLY)                       H1110080
C*****  GENERAL CDMMENTS                                                 H1110090
C*****    INTRINSIC AND EXTERNAL FUNCTIDNS ASSUMED WDRKING               H1110100
C*****  INTRINSIC AND BASIC EXTERNAL FUNCTIDNS DECLARED IN A     10.1.7 H1110110
C*****  TYPE STATEMENT DF SAME TYPE AS TABLES 3 AND 4              5.3   H1110120
C*****                                                                   H1110130
C*****  S P E C I F I C A T I D N S  SEGMENT 111                         H1110140
C*****                                                                   H0013550
C*****  WHEN EXECUTING DNLY SEGMENT 111, THE SPECIFICATIDN STATEMENTS    H0013555
C*****  WHICH APPEAR AS CDMMENT CARDS MUST HAVE THE C=                   H0013560
C*****  IN CDLUMNS  1  AND  2  REMDVED.                                  H0013565
C*****                                                                   H0013570
C=     DDUBLE PRECISIDN DPAFD,DPBFD,DPCFD,DPDFD,DPFFD,DPGFD,DPEFD,DPHFD  H0013575
C=     DDUBLE PRECISIDN DPAVD, DPBVD, DPCVD, DPDVD,DAWVD,DBWVD, DCWVD    H0013580
C=     DDUBLE PRECISIDN DPA1D(5),FC2D(5,5)                               H0013585
C=     DDUBLE PRECISIDN DBLE, DEXP                                       H0013590
C=     CDMPLEX CMPLX, CEXP                                               H0013595
C=     CDMPLEX CHAVC,CHBVC,CHCVC,CHDVC,CHEVC,CHFVC                       H0013600
C=     CDMPLEX CHAFC, CHBFC, CHCFC, CHDFC, CAWVC, CBWVC                  H0013605
C=     LDGICAL A3B(2,2,2)                                                H0013610
C=     LDGICAL MCFVB, MCHVB, ABFB, BCFB, IEFB, KLFB                      H0013615
C=    -   ,MCEVB,MCIVB,MCKVB,ATVB,AWVB, BWVB, CWVB, DWVB, EWVB, SWVB,TWVB H0013620
C*****                                                                   H0013625
C*****  WHEN EXECUTING DNLY SEGMENT 111, THE SEGMENT 006, WHICH          H1110150
C*****  CDNTAINS THE STATEMENT FUNCTIDNS BEING TESTED HERE MUST BE       H1110160
C*****  INSERTED AFTER THE SPECIFICATIDN STATEMENTS DF SEGMENT 111.      H1110170
C*****                                                                   H1110180
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  ND INPUT TAPE.      H1110190
C*****                                                                   H0073575
C*****  WHEN EXECUTING DNLY SEGMENT 111, THE FDLLOWING STATEMENT         H0073580
C*****  NUVI = 6  MUST HAVE THE C= IN CDLUMNS 1 AND 2 REMDVED.           H0073585
C=     NUVI = 6                                                          H0073590
C*****                                                                   H0073595
       WRITE (NUVI,1110)                                                 H1110200
1110   FDRMAT(39H1 FSFTS - (111) STATEMENT FUNCTIDN TEST//               H1110210
      1 39H  DDUBLE PRECISIDN, CDMPLEX AND LDGICAL//                     H1110220
     218H  ASA REF. - 8.1.2//10H  RESULTS )                              H1110230
C*****    HEADER FDR SEGMENT 111 WRITTEN                                 H1110240
C*****    CDNSTANTS USED IN THIS SEGMENT                                 H1110250
       CHAVC = (1.0,2.0)                                                 H1110260
       CHBVC = (-2.0,3.0)                                                H1110270
       DPA1D(2) = 3.5D0                                                  H1110280
       ATVB = .FALSE.                                                    H1110290
       PPDVS = 18.                                                       H1110300
       RRDVS = 21.0                                                      H1110310
       ATVS = 18.0                                                       H1110320
       MCFVB = .TRUE.                                                    H1110330
       FC2D(2,2) = 1.75D0                                                H1110340
C*****    TEST DF D.P. STATEMENT FUNCTIDNS                               H1110350
       DPAVD = DPAFD(3.5D0,DPA1D(2)) - 49.0D0                            H1110360
       DPBVD = DPBFD(1.D0,DPA1D(2)- 2.5D0,DBLE(1.0)) - 1.0D0             H1110370
       DPCVD = DPCFD(0.D0,1.0D0,DPA1D(2)+ 0.5D0) - 7.5D0                 H1110380
       DPDVD = DPDFD(DBLE(AIMAG(CHAVC)),FC2D(2,2)) + 2.0D0               H1110390
       WRITE (NUVI,1118) DPAVD, DPBVD, DPCVD, DPDVD                      H1110400
       DPAVD = DPEFD(1.0D0, FC2D(2,2) *2.D0,(1.0,-4.),AMAX1(2.0,4.0))    H1110410
      1  - 4.5D0                                                         H1110420
       DPBVD = DPFFD(DPA1D(2), FC2D(2,2)-1.75D0,5.00) - 22.25D0          H1110430
```

```
      DPCVD = DPGFD(2.D0/.2D1,DPA1D(2) - 2.5D0,1.0,CHAVC) - 4.0D0        H1110440
      DPDVD= DPHFD(3.5D0, FC2D(2,2) - 2.75D0,5.0) - 34.5D0               H1110450
      WRITE (NUVI,1118) DPAVD, DPBVD, DPCVD, DPDVD                       H1110460
C*****    TEST DF CDMPLEX STATEMENT FUNCTIDNS                            H1110470
      CHCVC = CHAFC((2.0,2.),CHAVC) - (3.0,12.0)                         H1110480
      CHDVC = CHBFC((4.0,-8.5),CHBVC,1.0) - (7.0,-10.5)                  H1110490
      CHEVC = CHCFC((1.0,1.0) **2,CHAVC, 0.000, AIMAG(CHAVC) -2.0)       H1110500
      CHFVC = CHDFC((0.0,0.0)    ,CHAVC, 0.000 , SNGL (DMIN1(0.D0,4.D0))H1110510
     1)-(1.0,0.0)                                                        H1110520
      WRITE (NUVI,1117) CHCVC, CHDVC, CHEVC, CHFVC                       H1110530
      WRITE (NUVI, 1119)                                                 H1110540
C*****  TEST DF LDGICAL STATEMENT FUNCTIDN                              H1110550
      MCEVB = PPDVS .GT. 60.0                                            H1110560
      A3B(1,1,1) = ATVS .LE. 20.9 .AND. ABFB(.TRUE.,.TRUE.,.FALSE.)      H1110570
      MCHVB  = BCFB(.TRUE.,.FALSE.,PPDVS,21.0) .AND..NDT.PPDVS.GE.RRDVS  H1110580
      MCIVB = .NDT. (IEFB(.FALSE.,ATVB,.TRUE.,650.,-5.11).AND.ATVB)      H1110590
      MCKVB = MCFVB.AND.KLFB(.TRUE.,.TRUE.,.TRUE.,100.).AND..NDT.MCEVB   H1110600
      WRITE (NUVI,1116) A3B(1,1,1), MCHVB, MCIVB, MCKVB                  H1110610
1116  FORMAT(//4(L4)//38H THE FOUR ABOVE ANSWERS SHOULD BE TRUE/         H1110620
     1 35H  FDR THIS SEGMENT TD BE SUCCESSFUL)                           H1110630
1117  FDRMAT(/ 4(F16.7,F14.7/))                                          H1110640
1118  FDRMAT (/ 4(D30.18/))                                              H1110650
1119  FDRMAT (/ 40H  ALL ABDVE ANSWERS SHDULD BE 0 FDR THIS/             H1110660
     140H  TEST SEGMENT TD BE SUCCESSFUL. VALUES /40H  WITH EXPDNENTS LEH1110670
     2SS THAN    10**(-14) /22H  ARE CDNSIDERED ZERD )                  H1110680
C*****    END DF TEST SEGMENT 111                                       H1110690
C*****  WHEN EXECUTING DNLY SEGMENT 111, THE  STDP  AND  END  CARDS     H1110700
C*****  WHICH APPEAR AS CDMMENT CARDS MUST HAVE THE  C=                 H1110710
C*****  IN CDLUMNS  1  AND  2  REMDVED.                                 H1110720
C=    STDP                                                             H1110730
C=    END                                                              H1110740
      STOP                                                             H9999995
      END                                                              H9999999
 SAMPLE CDMPUTER, FDRTRAN CDMPILER LEVEL
 DD NDT READ DR WRITE RECDRD 2. DDUBLE SPACE ON DUTPUT.    ID 2
 DPERATING SYSTEM VERSIDN
 DD NDT READ DR WRITE RECDRD 4. DDUBLE SPACE DN DUTPUT.    ID 4
 DATE, INSTALLATION NAME
 DD NDT READ DR WRITE RECDRD 6. DDUBLE SPACE DN DUTPUT.    ID 6
C*****    PART9    ************************************************H0003700
C*****                                                              H0003705
C*****    ANSI FDRTRAN   (X3.9-1966)     TEST PRDGRAMS              H0003710
C*****                                                              H0003715
C*****    PREPARED BY THE NATIDNAL BUREAU DF STANDARDS     VERSIDN 3 H0003720
C*****                                                              H0003725
C*****    JUNE 1974                                                 H0003730
C*****                                                              H0003735
C*****    PART 9  DF 14 PARTS                                       H0003740
C*****                                                              H0003745
C*****    SEGMENTS INCLUDED                                         H0003750
C*****                                                              H0003755
C*****      CPXAD - 140 ADDITIDN AND SUBTRACTIDN DF CDMPLEX NUMBERS H0003760
C*****                                                              H0003765
C*****      CPXMU - 141 MULTIPLICATIDN DF CDMPLEX NUMBERS           H0003770
C*****                                                              H0003775
C*****      CPXDV - 142 DIVISIDN DF CDMPLEX NUMBERS                 H0003780
C*****                                                              H0003785
C*****      CPXEX - 143 EXPDNENTIATIDN OF CDMPLEX NUMBERS           H0003790
C*****                                                              H0003795
C*****      CPXDP - 144 ARITHMETIC DPERATIDNS DN CDMPLEX NUMBERS    H0003800
C*****                                                              H0003805
C*****      CREAD - 145 ADDITIDN, SUBTRACTIDN DF CDMPLEX, REAL NUMBERS H0003810
C*****                                                              H0003815
C*****      CREMU - 146 MULTIPLICATIDN DF CDMPLEX BY REAL NUMBERS   H0003820
C*****                                                              H0003825
C*****      CREDV - 147 DIVISIDN DF REAL, CDMPLEX BY CDMPLEX, REAL NDS. H0003830
C*****                                                              H0003835
C*****      CREDP - 148 CDMBINED DPERATIONS DN COMPLEX AND REAL NDS. H0003840
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C*****                                                                  H0003845
C*****      MISC3 - 149 BLANKS IN AND CONT. OF STATEMENT TO MAX. LINES  H0003850
C*****                                                                  H0003855
C*****      MISC4 - 150 SPECIAL CHARACTERS FOR CONTINUATIONS            H0003860
C*****                                                                  H0013700
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN           H0013705
C*****  SEGMENTS 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150  H0013710
C*****  ARE RUN AS ONE MAIN PROGRAM.                                    H0013715
C*****                                                                  H0013720
      DIMENSION A1S(5), A2S(2,2)                                        H0013725
      INTEGER AVI, I1I(5), I2I(2,2)                                     H0013730
      COMPLEX AVC, BVC, CVC, DVC, EVC, FVC, GVC, HVC, IVC, JVC,         H0013735
     1   PVC, RVC, SVC, TVC, UVC,                                       H0013740
     2   AAVC, ABVC, BAVC, BCVC, CAVC, CCVC, CDVC, DAVC, DCVC, ASVC,    H0013745
     3   BSVC, CSVC, DSVC, DBVC, DDVC, MAVC, MBVC, MCVC, MDVC, BBVC,    H0013750
     4   AAAVC, ABAVC, ACAVC, ADAVC, AASVC, ABSVC, ACSVC, ADSVC         H0013755
      COMPLEX NUMVC, DENVC, QAVC, QBVC, QCVC, QDVC                      H0013760
C*****                                                                  H0013765
C*****                                                                  H0013770
C*****  END OF SPECIFICATIONS FOR SEGMENTS                              H0013775
C*****  140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150           H0013780
C*********************************************************************H1400010
C*****                                                                  H1400020
C*****                              CPXAD - (140)                       H1400030
C*****                                                                  H1400040
C*********************************************************************H1400050
C*****                          GENERAL PURPOSE                         H1400060
C*****      TO TEST ADDITION AND SUBTRACTION OF COMPLEX NUMBERS  ASA REFH1400070
C*****      INCLUDES OPERATIONS WITH UP TO 9 TERMS                 6.1  H1400080
C*****      DOES NOT TEST FOR ACCURACY                                  H1400090
C*****                                                                  H1400100
C*****ADDITION AND SUBTRACTION OF 2 TERMS                               H1400110
C*****                                                                  H1400120
C*****  S P E C I F I C A T I O N S  SEGMENT 140                        H1400130
C*****                                                                  H0013785
C*****  WHEN EXECUTING ONLY SEGMENT 140, REMOVE THE PRECEDING           H0013790
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS WHICH APPEAR      H0013795
C*****  AS COMMENTS MUST HAVE THE C= IN COLUMNS 1  AND 2  REMOVED.      H0013800
C*****                                                                  H0013805
C=    COMPLEX  AVC, BVC, CVC, DVC, EVC, FVC, GVC, HVC, IVC, JVC, AAVC,  H0013810
C=   1 ABVC,BAVC,BBVC,CCVC,CDVC,BCVC,DCVC                              H0013815
C*****                                                                  H0013820
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS         H1400140
      IRVI = 5                                                          H0073700
      NUVI = 6                                                          H0073705
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0073710
      WRITE(NUVI,0071)                                                  H0073715
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0073720
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                  H0073725
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0073730
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0073735
     5 23H  VERSION 3     PART 9 ///)                                   H0073740
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER       H0073745
C       PREPARED BY USER                                                H0073750
C       READ, NO LIST                                                   H0073755
C       PREPARED BY USER                                                H0073760
C       READ, NO LIST                                                   H0073765
C       PREPARED BY USER                                                H0073770
C       READ, NO LIST                                                   H0073775
      READ(IRVI,0070)                                                   H0073780
      READ(IRVI,0072)                                                   H0073785
      READ(IRVI,0073)                                                   H0073790
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966       /)              H0073795
0072  FORMAT(40H   TEST PROGRAMS                        /)              H0073800
0073  FORMAT(40H   FORTRAN COMPILER                     /)              H0073805
      WRITE(NUVI,0070)                                                  H0073810
      WRITE(NUVI,0072)                                                  H0073815
      WRITE(NUVI,0073)                                                  H0073820
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      WRITE (NUVI, 1401)                                                H1400150
1401  FORMAT(1H1,1X,34HCPXAD - (140) COMPLEX ADDITION AND/16X,          H1400160
     111HSUBTRACTION//2X,14HASA REF. - 6.1//2X,7HRESULTS//)             H1400170
      AVC=(1.467,2.560)                                                 H1400180
      BVC=(3.568,7.480)                                                 H1400190
      CVC=AVC+BVC                                                       H1400200
      DVC=AVC+(3.568,7.480)                                             H1400210
      EVC=(1.9467,2.9560)+BVC                                           H1400220
      FVC=(1.467,2.560)+(3.568,7.480)                                   H1400230
      GVC=AVC-BVC                                                       H1400240
      HVC = (.1467E+1,.2560E1) - BVC                                    H1400250
      IVC = AVC - (3568E-3,.7480E+1)                                    H1400260
      JVC=(1.467,2.560)-(3.568,7.480)                                   H1400270
C*****ADDITION AND SUBTRACTION OF 3 TERMS                               H1400280
      AAVC=AVC+BVC-CVC                                                  H1400290
      ABVC=AVC+(3.568,7.480)-DVC                                        H1400300
      BAVC=(1.467,2.560)+BVC-CVC                                        H1400310
      BBVC=(1.467,2.560)+(3.568,7.480)-FVC                              H1400320
      BCVC=AVC-BVC-GVC                                                  H1400330
      CCVC=(1.467,2.560)-BVC-HVC                                        H1400340
      CDVC=AVC-(3.568,7.480)-IVC                                        H1400350
      DCVC=(1.467,2.560)-(3.568,7.480)-JVC                              H1400360
      WRITE(NUVI,1402) AAVC,ABVC,BAVC,BBVC,BCVC,CCVC,CDVC,DCVC          H1400370
C*****ADDITION AND SUBTRACTION OF 5 TERMS                               H1400380
      AAVC=AVC-(1.89,6.48)-AAVC-BVC+(0.0,9.830)                         H1400390
      ABVC=AVC-(1.89,6.48)-AAVC-BVC+(0.0,9.830)                         H1400400
      WRITE(NUVI,1402)ABVC                                              H1400410
 1402 FORMAT(2X,2F8.4)                                                  H1400420
      AAVC=AVC-(1.89,6.48)-BVC+(0.0,9.83)+CVC                           H1400430
C*****ADDITION AND SUBTRACTION OF 6 TERMS                               H1400440
      ABVC=AVC-(1.89,6.48)-BVC+(0.0,9.83)+CVC-AAVC                      H1400450
      WRITE(NUVI,1402) ABVC                                             H1400460
C*****ADDITION AND SUBTRACTION OF 8 TERMS                               H1400470
      AAVC=AVC+BVC-CVC+(0.34,6.45)-(4.54,6.85)+DVC+(1.0,0.0)-EVC        H1400480
C*****ADDITION AND SUBTRACTION OF 9 TERMS                               H1400490
      ABVC=AVC+BVC-CVC+(0.34,6.45)-(4.54,6.85)+DVC+(1.0,0.0)-EVC-AAVC   H1400500
      WRITE (NUVI,1403) ABVC                                            H1400510
 1403 FORMAT(2X,2F8.4//2X,35HTEST IS POSITIVE IF NUMBERS PRINTED/2X ,   H1400520
     117HABOVE ARE 0.0,0.0)                                             H1400530
C*****    END OF TEST SEGMENT 140                                       H1400540
C*****  WHEN EXECUTING ONLY SEGMENT 140, THE  STOP  AND  END  CARDS     H1400550
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H1400560
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1400570
C=    STOP                                                              H1400580
C=    END                                                               H1400590
C*************************************************************************H1410010
C*****                                                                  H1410020
C*****                       CPXMU - (141)                              H1410030
C*************************************************************************H1410040
C*****                    GENERAL PURPOSE                               H1410050
C*****    TO TEST MULTIPLICATION OF COMPLEX NUMBERS            ASA REFH1410060
C*****    INCLUDES OPERATIONS WITH UP TO 10 TERMS              6.1     H1410070
C*****    DOES NOT TEST FOR ACCURACY                                    H1410080
C*****                                                                  H1410090
C*****                                                                  H1410100
C*****  S P E C I F I C A T I O N S   SEGMENT 141                       H1410110
C*****                                                                  H0013825
C*****  WHEN EXECUTING ONLY SEGMENT 141, THE SPECIFICATION STATEMENTS   H0013830
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                      H0013835
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0013840
C*****                                                                  H0013845
C=    COMPLEX AVC, BVC, CVC, DVC, EVC, FVC, GVC, HVC, IVC, JVC          H0013850
C=   1   ,AAVC, ABVC, BAVC, BBVC                                        H0013855
C*****                                                                  H0013860
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1410120
C*****                                                                  H0073825
C*****  WHEN EXECUTING ONLY SEGMENT 141, THE FOLLOWING STATEMENT        H0073830
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.     H0073835
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C*****                                                                  H0073840
C=    NUVI = 6                                                          H0073845
C*****                                                                  H0073850
      WRITE (NUVI, 1411)                                                H1410130
1411  FORMAT (1H1,1 X,36HCPXMU - (141) COMPLEX MULTIPLICATION//2X,       H1410140
     114HASA REF. - 6.1//2X,7HRESULTS//)                                H1410150
C*****MULTIPLICATION OF TWO TERMS                                       H1410160
      AVC = (-0.5,0.86602)                                              H1410170
      BVC = (-0.5,-0.86602)                                             H1410180
      AAVC = (AVC * BVC )                                               H1410190
      ABVC =  AVC * (-0.5,-0.86602)                                     H1410200
      BAVC = (-0.5,0.86602) * BVC                                       H1410210
      BBVC = (-0.5,0.86602)*(-0.5,-0.86602)                             H1410220
      WRITE(NUVI,1412) AAVC,ABVC,BAVC,BBVC                              H1410230
C*****MULTIPLICATION OF 3 TERMS                                         H1410240
      AVC=(0.0,1.0)                                                     H1410250
      BVC=(1.0,0.0)                                                     H1410260
      CVC=(0.0,-1.0)                                                    H1410270
      AAVC=AVC*BVC*CVC                                                  H1410280
      ABVC=(0.0,1.0)*BVC*(0.0,-1.0)                                     H1410290
      WRITE(NUVI,1412) AAVC,ABVC                                        H1410300
 1412  FORMAT(2X,2F8.3)                                                 H1410310
C*****MULTIPLICATION OF 4 TERMS                                         H1410320
      AVC=(0.30901,0.95105)                                             H1410330
      BVC=(-0.80901,0.58778)                                            H1410340
      CVC=(-0.80901,-0.58778)                                           H1410350
      DVC=(0.30901,-0.95105)                                            H1410360
      AAVC=AVC*BVC*CVC*DVC                                              H1410370
      ABVC=AVC*(-0.80901,0.58778)*CVC*(0.30901,-0.95105)                H1410380
      WRITE(NUVI,1412) AAVC,ABVC                                        H1410390
C*****MULTIPLICATION OF 5 TERMS                                         H1410400
      AVC=(0.5,0.86602)                                                 H1410410
      BVC=(-0.5,0.86602)                                                H1410420
      CVC = (1.0,0.0)                                                   H1410430
      DVC=(-0.5,-0.86602)                                               H1410440
      EVC=(0.5,-0.86602)                                                H1410450
      AAVC=AVC*BVC*CVC*DVC*EVC                                          H1410460
      ABVC=AVC*(-0.5,0.86602)*CVC*(-0.5,-0.86602)*EVC                   H1410470
      WRITE(NUVI,1412) AAVC,ABVC                                        H1410480
C*****MULTIPLICATION OF 6 TERMS                                         H1410490
      AVC = (0.98480,0.17364)                                           H1410500
      BVC=(-0.17364,0.98480)                                            H1410510
      CVC=(-0.86602,0.5)                                                H1410520
      DVC=(-0.93969,-0.34202)                                           H1410530
      EVC=(0.34202,-0.93969)                                            H1410540
      FVC=(0.86602,-0.5)                                                H1410550
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC                                      H1410560
      ABVC=AVC*(-0.17364,0.98480)*CVC*(-0.93969,-0.34202)*EVC*(0.86602, H1410570
     1-0.5)                                                             H1410580
      WRITE(NUVI,1412) AAVC,ABVC                                        H1410590
C*****MULTIPLICATION OF 7 TERMS                                         H1410600
      AVC=(0.70710,0.70710)                                             H1410610
      BVC=(0.0,1.0)                                                     H1410620
      CVC=(-0.70710,0.70710)                                            H1410630
      DVC=(1.0,0.0)                                                     H1410640
      EVC=(-0.70710,-0.70710)                                           H1410650
      FVC=(0.0,-1.0)                                                    H1410660
      GVC=(0.70710,-0.70710)                                            H1410670
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC                                  H1410680
      ABVC=AVC*(0.0,1.0)*CVC*( 1.0,0.0)*EVC*(0.0,-1.0)*GVC              H1410690
      WRITE(NUVI,1412) AAVC,ABVC                                        H1410700
C*****MULTIPLICATION OF 8 TERMS                                         H1410710
      AVC=(0.76604,0.64278)                                             H1410720
      BVC=(0.17364,0.98480)                                             H1410730
      CVC=(-0.5,0.86602)                                                H1410740
      DVC=(-0.93969,0.34202)                                            H1410750
      EVC=(-0.93969,-0.34202)                                           H1410760
      FVC=(-0.5,-0.86602)                                               H1410770
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      GVC=(0.17364,-0.98480)                                            H1410780
      HVC=(0.76604,-0.64278)                                            H1410790
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC*HVC                              H1410800
      ABVC=AVC*(0.17364,0.98480)*CVC*DVC*(-0.93969,-0.34202)*FVC*GVC*HVCH1410810
      WRITE(NUVI,1412) AAVC,ABVC                                        H1410820
C*****MULTIPLICATION OF 9 TERMS                                         H1410830
      AVC=(0.80901,0.58778)                                             H1410840
      BVC=(0.30901,0.95105)                                             H1410850
      CVC=(-0.94832,0.31730)                                            H1410860
      DVC=(-0.80901,0.58778)                                            H1410870
      EVC = (1.0,0.0)                                                   H1410880
      FVC=(-0.80901,-0.58778)                                           H1410890
      GVC=(-0.94832,-0.31730)                                           H1410900
      HVC=(0.30901,-0.95105)                                            H1410910
      IVC=(0.80901,-0.58778)                                            H1410920
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC*HVC*IVC                          H1410930
      ABVC=AVC*(0.30901,0.95105)*CVC*(-0.80901,0.58778)*( 1.0,0.0)*FVC* H1410940
     1GVC*HVC*IVC                                                       H1410950
      WRITE(NUVI,1412) AAVC,ABVC                                        H1410960
C*****MULTIPLICATION OF 10 TERMS                                        H1410970
      AVC=(0.86602,0.5)                                                 H1410980
      BVC=(0.5,0.86602)                                                 H1410990
      CVC=(0.0,1.0)                                                     H1411000
      DVC=(-0.5,0.86602)                                                H1411010
      EVC=(-0.86602,0.5)                                                H1411020
      FVC=(-1.0,0.0)                                                    H1411030
      GVC=(-0.86602,-0.5)                                               H1411040
      HVC=(-0.5,-0.86602)                                               H1411050
      IVC=(0.0,-1.0)                                                    H1411060
      JVC=(0.0,1.0)                                                     H1411070
      AAVC=AVC*BVC*CVC*DVC*EVC*FVC*GVC*HVC*IVC*JVC                      H1411080
      ABVC=AVC*(0.5,0.86602)*CVC*(-0.5,0.86602)*EVC*FVC*GVC*HVC*(0.0,-1.H1411090
     10)*JVC                                                            H1411100
      WRITE(NUVI,1412) AAVC,ABVC                                        H1411110
      WRITE(NUVI,1413)                                                  H1411120
1413  FORMAT (1H0,35HTEST IS POSITIVE IF NUMBERS PRINTED/1X,            H1411130
     117HABOVE ARE 1.0,0.0)                                             H1411140
      WRITE(NUVI, 1414)                                                 H1411150
1414  FORMAT (//39H  ERROR SHOULD NOT EXCEED + OR - .001  )             H1411160
C*****    END OF TEST SEGMENT 141                                       H1411170
C*****  WHEN EXECUTING ONLY SEGMENT 141, THE STOP AND END CARDS         H1411180
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1411190
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1411200
C=    STOP                                                              H1411210
C=    END                                                               H1411220
C*************************************************************************H1420010
C*****                                                                   H1420020
C*****                          CPXDV-(142)                              H1420030
C*****                                                                   H1420040
C*************************************************************************H1420050
C*****                  GENERAL PURPOSE                                  H1420060
C*****       TO TEST DIVISION OF COMPLEX NUMBERS                ASA REFH1420070
C*****                                                           6.1     H1420080
C*****                                                                   H1420090
C*****  S P E C I F I C A T I O N S   SEGMENT 142                        H1420100
C*****                                                                   H0013865
C*****  WHEN EXECUTING ONLY SEGMENT 142, THE SPECIFICATION STATEMENTS    H0013870
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                       H0013875
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0013880
C*****                                                                   H0013885
C=    COMPLEX NUMVC,DENVC,QAVC,QBVC,QCVC,QDVC                           H0013890
C*****                                                                   H0013895
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H1420110
C*****                                                                   H0073855
C*****  WHEN EXECUTING ONLY SEGMENT 142, THE FOLLOWING STATEMENT         H0073860
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.      H0073865
C*****                                                                   H0073870
C=    NUVI = 6                                                          H0073875
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C*****                                                                  H0073880
      WRITE (NUVI, 1421)                                                H1420120
1421  FORMAT(1H1,1X,25HCPXDV - (142) DIVISION OF/16X,                   H1420130
     115HCOMPLEX NUMBERS//15H  ASA REF.- 6.1//2X,7HRESULTS//)           H1420140
C***** TEST NUMBER 1                                                    H1420150
      NUMVC=(0.36602,1.36602)                                           H1420160
      DENVC=(0.86602,0.5)                                               H1420170
      QAVC=NUMVC/DENVC                                                  H1420180
      QBVC=(0.36602,1.3660) /DENVC                                      H1420190
      QCVC=NUMVC/(0.86602,0.5)                                          H1420200
      QDVC=(0.36602,1.36602)/(0.86602,0.5)                              H1420210
      WRITE(NUVI,1422)  QAVC,QBVC,QCVC,QDVC                             H1420220
C*****TEST NUMBER 2                                                     H1420230
      NUMVC=(0.0,1.41420)                                               H1420240
      DENVC=(0.70710,0.70710)                                           H1420250
      QAVC=NUMVC/DENVC                                                  H1420260
      QBVC=(0.0,1.41420)/DENVC                                          H1420270
      QCVC=NUMVC/(0.70710,0.70710)                                      H1420280
      QDVC=(0.0,1.41420)/(0.70710,0.70710)                              H1420290
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                              H1420300
 1422 FORMAT(2X,2F8.4)                                                  H1420310
C*****TEST NUMBER 3                                                     H1420320
      NUMVC=(-0.36602,1.36602)                                          H1420330
      DENVC=(0.5,0.86602)                                               H1420340
      QAVC=NUMVC/DENVC                                                  H1420350
      QBVC=(-0.36602,1.36602)/DENVC                                     H1420360
      QCVC=NUMVC/(0.5,0.86602)                                          H1420370
      QDVC=(-0.36602,1.36602)/(0.5,0.86602)                             H1420380
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                              H1420390
C*****TEST NUMBER 4                                                     H1420400
      NUMVC=(0.73204,2.73204)                                           H1420410
      DENVC=(1.73204,1.0)                                               H1420420
      QAVC=NUMVC/DENVC                                                  H1420430
      QBVC=(0.73204,2.73204)/DENVC                                      H1420440
      QCVC=NUMVC/(1.73204,1.0)                                          H1420450
      QDVC=(0.73204,2.73204)/(1.73204,1.0)                              H1420460
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                              H1420470
C***** TEST NUMBER 5                                                    H1420480
      NUMVC=(0.0,2.82840)                                               H1420490
      DENVC=(1.41420,1.41420)                                           H1420500
      QAVC=NUMVC/DENVC                                                  H1420510
      QBVC=(0.0,2.82840)/DENVC                                          H1420520
      QCVC=NUMVC/(1.41420,1.41420)                                      H1420530
      QDVC=(0.0,2.82840)/(1.41420,1.41420)                              H1420540
      WRITE(NUVI,1422) QAVC,QBVC,QCVC,QDVC                              H1420550
      WRITE(NUVI,1423)                                                  H1420560
1423  FORMAT (//2X,35HTEST IS POSITIVE IF NUMBERS PRINTED/2X,           H1420570
     117HABOVE ARE 1.0,1.0)                                             H1420580
      WRITE (NUVI, 1424)                                                H1420590
1424  FORMAT (//39H  ERROR SHOULD NOT EXCEED + OR - .0001 )             H1420600
C*****    END OF TEST SEGMENT 142                                       H1420610
C*****  WHEN EXECUTING ONLY SEGMENT 142, THE STOP AND END CARDS         H1420620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1420630
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1420640
C=    STOP                                                              H1420650
C=    END                                                               H1420660
C***********************************************************************H1430010
C*****                                                                  H1430020
C*****                      CPXEX(143)                                  H1430030
C*****                                                                  H1430040
C***********************************************************************H1430050
C*****                    GENERAL PURPOSE                               H1430060
C*****    TO TEST EXPONENTIATION OF COMPLEX NUMBERS             ASA REFH1430070
C*****    BY INTEGERS                                             6.1 H1430080
C*****    EXPONENT VALUES VARY FROM 3 TO 100                          H1430090
C*****                                                                  H1430100
C*****  S P E C I F I C A T I O N S   SEGMENT 143                       H1430110
C*****                                                                  H0013900
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C*****  WHEN EXECUTING ONLY SEGMENT 143, THE SPECIFICATION STATEMENTS   H0013905
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                      H0013910
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0013915
C=     INTEGER AVI                                                      H0013920
C=     COMPLEX AVC,BVC,CVC,DVC,EVC                                      H0013925
C*****                                                                  H0013930
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1430120
C*****                                                                  H0073885
C*****  WHEN EXECUTING ONLY SEGMENT 143, THE FOLLOWING STATEMENT        H0073890
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.     H0073895
C*****                                                                  H0073900
C=     NUVI = 6                                                         H0073905
C*****                                                                  H0073910
       WRITE (NUVI, 1431)                                               H1430130
1431   FORMAT(1H1,1 X,36HCPXEX - (143) COMPLEX EXPONENTIATION//         H1430140
      1 2X,11HASA.REF.6.1//2X,29HRESULTS BASED ON THE FUNCTION//        H1430150
      2 2X,25H1.0 = SIN**2(X)+COS**2(X)//)                              H1430160
C***** EXPONENT=3                                                       H1430170
       AVC    = (-0.5,0.8660254)                                       H1430180
       AVI=3                                                            H1430190
       BVC=AVC**3                                                       H1430200
       CVC    = (-0.5,0.8660254) ** 3                                   H1430210
       DVC    = (-0.5,0.8660254) ** AVI                                 H1430220
       EVC=AVC**AVI                                                     H1430230
       WRITE(NUVI,1432) BVC,CVC,DVC,EVC                                 H1430240
C***** EXPONENT=4                                                       H1430250
       AVC=(0.0,1.0)                                                    H1430260
       AVI=4                                                            H1430270
       BVC=AVC**4                                                       H1430280
       CVC=(0.0,1.0)**4                                                 H1430290
       DVC=(0.0,1.0)**AVI                                               H1430300
       EVC=AVC**AVI                                                     H1430310
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                H1430320
 1432  FORMAT (2X,2F8.4)                                                H1430330
C***** EXPONENT=6                                                       H1430340
       AVC    = ( 0.5,0.8660254)                                       H1430350
       AVI=6                                                            H1430360
       BVC=AVC**6                                                       H1430370
       CVC    = ( 0.5,0.8660254) ** 6                                   H1430380
       DVC    = ( 0.5,0.8660254) ** AVI                                 H1430390
       EVC= AVC**AVI                                                    H1430400
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                H1430410
C***** EXPONENT=8                                                       H1430420
       AVC    = (0.7071068,0.7071068)                                   H1430430
       AVI=8                                                            H1430440
       BVC=AVC**8                                                       H1430450
       CVC    = (0.7071068,0.7071068) ** 8                              H1430460
       DVC    = (0.7071068,0.7071068) ** AVI                            H1430470
       EVC=AVC**AVI                                                     H1430480
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                H1430490
C***** EXPONENT=10                                                      H1430500
       AVC    = (0.8090170,0.5877853)                                   H1430510
       AVI=10                                                           H1430520
       BVC=AVC**10                                                      H1430530
       CVC    = (0.8090170,0.5877853) ** 10                             H1430540
       DVC    = (0.8090170,0.5877853) ** AVI                            H1430550
       EVC=AVC**AVI                                                     H1430560
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                H1430570
C*****EXPONENT=20                                                      H1430580
       AVC    = (0.9510565,0.3090170)                                   H1430590
       AVI=20                                                           H1430600
       BVC=AVC**20                                                      H1430610
       CVC    = (0.9510565,0.3090170) ** 20                             H1430620
       DVC    = (0.9510565,0.3090170) ** AVI                            H1430630
       EVC=AVC**AVI                                                     H1430640
       WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                H1430650
C***** EXPONENT=40                                                      H1430660
       AVC    = (0.9876883,0.1564345)                                   H1430670
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      AVI=40                                                            H1430680
      BVC=AVC**40                                                       H1430690
      CVC    = (0.9876883,0.1564345) ** 40                              H1430700
      DVC    = (0.9876883,0.1564345) ** AVI                             H1430710
      EVC=AVC**AVI                                                      H1430720
      WRITE(NUVI,1432)  BVC,CVC,DVC,EVC                                 H1430730
C***** EXPONENT=60                                                      H1430740
      AVC    = (0.9945219,0.1045285)                                    H1430750
      AVI=60                                                            H1430760
      BVC=AVC**60                                                       H1430770
      CVC    = (0.9945219,0.1045285) ** 60                              H1430780
      OVC    = (0.9945219,0.1045285) ** AVI                             H1430790
      EVC=AVC**AVI                                                      H1430800
      WRITE(NUVI,1432)  BVC,CVC,OVC,EVC                                 H1430810
C*****EXPONENT=80                                                       H1430820
      AVI = 80                                                          H1430830
      AVC    = (0.9969173,0.0784591)                                    H1430840
      BVC=AVC**80                                                       H1430850
      CVC    = (0.9969173,0.0784591) ** 80                              H1430860
      DVC    = (0.9969173,0.0784591) ** AVI                             H1430870
      EVC=AVC**AVI                                                      H1430880
      WRITE(NUVI,1432)  BVC,CVC,OVC,EVC                                 H1430890
C***** EXPONENT=100                                                     H1430900
      AVC    = (0.9980267,0.0627905)                                    H1430910
      AVI=100                                                           H1430920
      BVC=AVC**100                                                      H1430930
      CVC    = (0.9980267,0.0627905) ** 100                             H1430940
      OVC    = (0.9980267,0.0627905) ** AVI                             H1430950
      EVC=AVC**AVI                                                      H1430960
      WRITE(NUVI,1432)  BVC,CVC,OVC,EVC                                 H1430970
      WRITE (NUVI,1433)                                                 H1430980
 1433 FORMAT (//  37H  TEST IS POSITIVE IF NUMBERS PRINTED/2X,          H1430990
     1  26HABOVE ARE CLOSE TO 1.0,0.0)                                  H1431000
      WRITE (NUVI, 1434)                                                H1431010
1434  FORMAT(// 39H  ERROR SHOULO NOT EXCEEO + OR - .0001 )             H1431020
C*****    ENO OF TEST SEGMENT 143                                       H1431030
C*****  WHEN EXECUTING ONLY SEGMENT 143, THE STOP ANO END CARDS         H1431040
C*****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE  C=                 H1431050
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1431060
C=     STOP                                                           H1431070
C=     END                                                            H1431080
C*****************************************************************************H1440010
C*****                                                                 H1440020
C*****                          CPXOP - (144)                          H1440030
C*****                                                                 H1440040
C*****************************************************************************H1440050
C*****              GENERAL PURPOSE                            ASA REF H1440060
C*****  TO TEST ARITHMETIC OPERATIONS ON COMPLEX NUMBERS.       6.1     H1440070
C*****  OPERATIONS INCLUDE ALL BASIC OPERATORS (+,-,*,**) ACTING       H1440080
C*****  ON COMPLEX NUMBERS                                             H1440090
C*****                                                                 H1440100
C*****  S P E C I F I C A T I O N S   SEGMENT 144                      H1440110
C*****                                                                 H0013935
C*****  WHEN EXECUTING ONLY SEGMENT 144, THE SPECIFICATION STATEMENTS  H0013940
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                     H0013945
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                H0013950
C*****                                                                 H0013955
C=     INTEGER AVI                                                    H0013960
C=     COMPLEX  AVC, BVC, CVC, DVC, EVC, FVC, GVC,HVC,PVC,RVC,SVC,TVC,UVCH0013965
C*****                                                                 H0013970
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1440120
C*****                                                                 H0073915
C*****  WHEN EXECUTING ONLY SEGMENT 144, THE FOLLOWING STATEMENT       H0073920
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  ANO  2  REMOVED.    H0073925
C*****                                                                 H0073930
C=     NUVI = 6                                                       H0073935
C*****                                                                 H0073940
      WRITE (NUVI, 1441)                                                H1440130
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 1441  FORMAT(1H1,1X,32HCPXOP - (144) COMPLEX OPERATIONS//2X,                H1440140
     111HASA REF 6.1//2X,7HRESULTS//)                                       H1440150
       AVC = (0.9396926,0.3420201)                                          H1440160
       BVC = (1.2817127,0.5976725)                                          H1440170
       CVC = (0.0, 1.4142136)                                               H1440180
       DVC = (0.7071068, 0.7071068)                                         H1440190
       EVC = (1.0986841, 0.4550899)                                         H1440200
       AVI = 2                                                              H1440210
       RVC=(AVC*BVC+(0.9396926,0.3420201)*BVC+AVC*(1.2817127,0.5976725)-    H1440220
      1(0.9396926,0.3420201)*(1.2817127,0.5976725)+CVC/DVC+(0.0,1.4142136H1440230
      2)/OVC+CVC/(0.7071068,0.7071068)-(0.0,1.4142136)/(0.7071068,          H1440240
      3 0.7071068)+EVC**2-EVC**AVI+(1.0986841,0.4550899)**2+(1.0986841,     H1440250
      4 0.4550899)**AVI)**2/(0.0, 72.0)                                     H1440260
       FVC=(0.0,4.0)                                                        H1440270
       GVC=(0.43301,0.3)                                                    H1440280
       HVC=(0.43301,0.2)                                                    H1440290
       PVC=(1.73204,1.0)                                                    H1440300
       SVC=FVC/((GVC+HVC)*(PVC**2))                                         H1440310
       TVC=(0.0,4.0)/(((0.43301,0.3)+(0.43301,0.2))*((1.73204,1.0)**2))     H1440320
       UVC=FVC/((GVC+(0.43301,0.2))*(PVC**2))                               H1440330
       WRITE (NUVI,1442) RVC,SVC,TVC,UVC                                    H1440340
1442  FORMAT ( 4(2X,2F8.4/) /37H  TEST IS POSITIVE IF NUMBERS PRINTED /     H1440350
     12X, 17HABOVE ARE 1.0,0.0 )                                            H1440360
       WRITE (NUVI, 1443)                                                   H1440370
1443  FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )                 H1440380
C*****    END OF TEST SEGMENT 144                                           H1440390
C*****  WHEN EXECUTING ONLY SEGMENT 144, THE STOP AND END CARDS             H1440400
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                     H1440410
C*****  IN COLUMNS  1  AND  2  REMOVED.                                     H1440420
C=     STOP                                                                 H1440430
C=     END                                                                  H1440440
C*************************************************************************H1450010
C*****                                                                     H1450020
C*****                          CREAO-(145)                                H1450030
C*****                                                                     H1450040
C*************************************************************************H1450050
C*****  GENERAL PURPOSE                                          ASA REF   H1450060
C*****  TO TEST ADDITION AND SUBTRACTION OF COMPLEX                 6.1    H1450070
C*****  AND REAL NUMBERS                                                   H1450080
C*****                                                                     H1450090
C*****  S P E C I F I C A T I O N S   SEGMENT 145                          H1450100
C*****                                                                     H0013975
C*****  WHEN EXECUTING ONLY SEGMENT 145, THE SPECIFICATION STATEMENTS      H0013980
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                         H0013985
C*****  IN COLUMNS  1  ANO  2  REMOVED.                                    H0013990
C*****                                                                     H0013995
C=     COMPLEX AVC,BAVC,CAVC,DAVC,ASVC,BSVC,CSVC,AAVC                      H0014000
C=    2 ,        OSVC,AAAVC,ABAVC,ACAVC,ADAVC,AASVC,ABSVC,ACSVC,ADSVC     H0014005
C*****                                                                     H0014010
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.        H1450110
C*****                                                                     H0073945
C*****  WHEN EXECUTING ONLY SEGMENT 145, THE FOLLOWING STATEMENT           H0073950
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  ANO  2  REMOVED.        H0073955
C*****                                                                     H0073960
C=     NUVI = 6                                                            H0073965
C*****                                                                     H0073970
       WRITE (NUVI, 1450)                                                  H1450120
 1450 FORMAT(1H1,1X,38HCREAD - (145) ADDITION AND SUBTRACTION/             H1450130
     1 10X,27HOF COMPLEX AND REAL NUMBERS//2X,                             H1450140
     1 12HASA REF. 6.1//2X,7HRESULTS//)                                    H1450150
       AVC=(5.4,7.5)                                                       H1450160
       AVS=4.2                                                             H1450170
C***** AOOITION ANO SUBTRACTION OF 2 NUMBERS                               H1450180
       AAVC=AVC-AVS                                                        H1450190
       BAVC=(5.4,7.5)-AVS                                                  H1450200
       CAVC=AVC-4.2                                                        H1450210
       DAVC=(5.4,7.5)-4.2                                                  H1450220
       ASVC=AVC+AVS                                                        H1450230
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      BSVC=(5.4,7.5)+AVS                                                H1450240
      CSVC=AVC+4.2                                                      H1450250
      DSVC=(5.4,7.5)+4.2                                                H1450260
C***** ADDITION AND SUBTRACTION OF 3 NUMBERS                            H1450270
      AAAVC=AVC-AVS-AAVC                                                H1450280
      ABAVC=(5.4,7.5)-AVS-BAVC                                          H1450290
      ACAVC=AVC-4.2-(1.2,7.5)                                           H1450300
      ADAVC=(5.4,7.5)-4.2-(1.2,7.5)                                     H1450310
      AASVC=AVC+AVS-ASVC                                                H1450320
      ABSVC=(5.4,7.5)+AVS-BSVC                                          H1450330
      ACSVC=AVC+4.2-(9.6,7.5)                                           H1450340
      ADSVC=(5.4,7.5)+4.2-(9.6,7.5)                                     H1450350
      WRITE(NUVI,1451)ABAVC,ACAVC,ADAVC,AASVC,ABSVC,ACSVC,ADSVC,AAAVC   H1450360
1451  FORMAT( 2X, 2F8.4)                                                H1450370
C***** ADOITION ANO SUBTRACTION OF 7 NUMBERS                            H1450380
      AOSVC=AVC-(5.4,7.5)+AVS-4.2+ASVC-3.2-(6.4,7.5)                    H1450390
      WRITE(NUVI,1452) AOSVC                                            H1450400
 1452 FORMAT(2X,2F8.4//37H  TEST IS POSITIVE IF NUMBERS PRINTED/2X,     H1450410
     1 17HABOVE ARE 0.0,0.0)                                            H1450420
C*****    ENO OF TEST SEGMENT 145                                       H1450430
C*****  WHEN EXECUTING ONLY SEGMENT 145, THE STOP ANO ENO CAROS         H1450440
C*****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE  C=                 H1450450
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                 H1450460
C=    STOP                                                              H1450470
C=    END                                                               H1450480
C*******************************************************************************H1460010
C*****                                                                 H1460020
C*****                          CREMU - (146)                          H1460030
C*****                                                                 H1460040
C*******************************************************************************H1460050
C*****             GENERAL PURPOSE                                ASA REF H1460060
C*****    TO TEST MULTIPLICATION OF COMPLEX NUMBERS BY              6.1   H1460070
C*****    REAL NUMBERS                                                  H1460080
C*****                                                                  H1460090
C*****  S P E C I F I C A T I O N S   SEGMENT 146                       H1460100
C*****                                                                  H0014015
C*****  WHEN EXECUTING ONLY SEGMENT 146, THE SPECIFICATION STATEMENTS   H0014020
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                      H0014025
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                 H0014030
C*****                                                                  H0014035
C=    COMPLEX AVC,BVC,     MAVC,MBVC,MCVC,MOVC                          H0014040
C*****                                                                  H0014045
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1460110
C*****                                                                  H0073975
C*****  WHEN EXECUTING ONLY SEGMENT 146, THE FOLLOWING STATEMENT        H0073980
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  ANO  2  REMOVED.     H0073985
C*****                                                                  H0073990
C=    NUVI = 6                                                          H0073995
C*****                                                                  H0074000
      WRITE (NUVI, 1461)                                                H1460120
 1461 FORMAT(1H1,1X,39HCREMU - (146) MULTIPLICATION OF COMPLEX/16X,     H1460130
     1 7HBY REAL   //2X,                                                H1460140
     2 11HASA.REF.6.1//2X,7HRESULTS//)                                  H1460150
C*****MULTIPLICATION OF A COMPLEX NUMBER BY A REAL NUMBER               H1460160
      AVC=(1.6,3.2)                                                     H1460170
      AVS=0.625                                                         H1460180
      MAVC=AVC*AVS                                                      H1460190
      MBVC=(1.6,3.2)*AVS                                                H1460200
      MCVC=AVC*0.625                                                    H1460210
      MOVC=(1.6,3.2)*0.625                                              H1460220
      WRITE (NUVI,1463) MAVC,MBVC,MCVC,MOVC                             H1460230
1463  FORMAT(4(2X,2F8.4/)//37H  TEST IS POSITIVE IF NUMBERS PRINTED/,2X,H1460240
     417HABOVE ARE 1.0,2.0 )                                            H1460250
C*****MULTIPLICATION OF 4 TERMS                                         H1460260
      AVS=4.0                                                           H1460270
      BVS=0.25                                                          H1460280
      AVC=(0.93969,0.34202)                                             H1460290
      BVC=(1.28168,0.59764)                                             H1460300
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      MAVC=AVS*AVC*BVS*BVC                                              H1460310
      MBVC=4.0*BVS*AVC*BVC                                              H1460320
      MCVC=4.0*BVS*(0.93969,0.34202)*BVC                                H1460330
      MDVC=4.0*0.25*(0.93969,0.34202)*(1.28168,0.59764)                 H1460340
      WRITE (NUVI,1462) MAVC,MBVC,MCVC,MDVC                             H1460350
 1462 FORMAT(//4(2X,2F8.4)//37H  TEST IS POSITIVE IF NUMBERS PRINTED/   H1460360
     12X,17HABDVE ARE 1.0,1.0)                                          H1460370
      WRITE (NUVI, 1464)                                                H1460380
1464  FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )             H1460390
C*****    END OF TEST SEGMENT 146                                       H1460400
C*****  WHEN EXECUTING ONLY SEGMENT 146, THE STOP AND END CARDS         H1460410
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1460420
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1460430
C=    STOP                                                              H1460440
C=    END                                                               H1460450
C*************************************************************************H1470010
C*****                                                                  H1470020
C*****                          CREDV - (147)                           H1470030
C*****                                                                  H1470040
C*************************************************************************H1470050
C*****              GENERAL PURPOSE                              ASA REF H1470060
C*****  TO TEST DIVISION OF REAL (COMPLEX) NUMBERS BY              6.1   H1470070
C*****  COMPLEX (REAL) NUMBERS                                          H1470080
C*****                                                                  H1470090
C*****  S P E C I F I C A T I O N S   SEGMENT 147                       H1470100
C*****                                                                  H0014050
C*****  WHEN EXECUTING ONLY SEGMENT 147, THE SPECIFICATION STATEMENTS   H0014055
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                      H0014060
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0014065
C*****                                                                  H0014070
C=    COMPLEX AVC,DAVC,DBVC,DCVC,DDVC                                   H0014075
C*****                                                                  H0014080
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1470110
C*****                                                                  H0074005
C*****  WHEN EXECUTING ONLY SEGMENT 147, THE FOLLOWING STATEMENT        H0074010
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.     H0074015
C*****                                                                  H0074020
C=    NUVI = 6                                                          H0074025
C*****                                                                  H0074030
      WRITE (NUVI, 1471)                                                H1470120
1471  FORMAT (1H1,1X,33HCREDV - (147) DIVISION OF COMPLEX/16X,16HAND REAH1470130
     1L NUMBERS//2X,11HASA REF 6.1//2X,7HRESULTS//)                     H1470140
C*****DIVISION OF REAL BY COMPLEX                                       H1470150
      AVS=2.0                                                           H1470160
      AVC=(1.0, -1.0)                                                   H1470170
      DAVC=AVS/AVC                                                      H1470180
      DBVC=2.0/AVC                                                      H1470190
      DCVC=AVS/(1.0, -1.0)                                              H1470200
      DDVC=2.0/(1.0, -1.0)                                              H1470210
      WRITE (NUVI,1473) DAVC,DBVC,DCVC,DDVC                             H1470220
1473  FORMAT( 2X, 2F8.4)                                                H1470230
C*****DIVISION OF COMPLEX BY REAL                                       H1470240
      AVS=2.5463                                                        H1470250
      AVC=(2.5463,2.5463)                                               H1470260
      DAVC=AVC/AVS                                                      H1470270
      DBVC=(2.5463,2.5463)/AVS                                          H1470280
      DCVC=AVC/2.5463                                                   H1470290
      DDVC=(2.5463,2.5463)/2.5463                                       H1470300
      WRITE (NUVI,1472) DAVC,DBVC,DCVC,DDVC                             H1470310
1472  FORMAT (4(2X,2F8.4)//37H  TEST IS POSITIVE IF NUMBERS PRINTED/    H1470320
     1 2X,17HABDVE ARE 1.0,1.0)                                         H1470330
      WRITE (NUVI, 1474)                                                H1470340
1474  FORMAT(// 39H  ERRDR SHDULD NOT EXCEED + OR - .0001 )             H1470350
C*****    END OF TEST SEGMENT 147                                       H1470360
C*****  WHEN EXECUTING ONLY SEGMENT 147, THE STOP AND END CARDS         H1470370
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1470380
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1470390
C=    STOP                                                              H1470400
```

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C=    END                                                                   H1470410
C*****************************************************************************H1480010
C*****                                                                       H1480020
C*****                          CREOP - (148)                                H1480030
C*****                                                                       H1480040
C*****************************************************************************H1480050
C*****                   GENERAL PURPOSE                          ASA REF H1480060
C*****   TO TEST COMBINED OPERATIONS ON COMPLEX AND REAL NUMBERS    6.1 H1480070
C*****DIVISION OF TWO POLYNOMIALS                                          H1480080
C*****                                                                       H1480090
C*****  S P E C I F I C A T I O N S   SEGMENT 148                            H1480100
C*****                                                                       H0014085
C*****  WHEN EXECUTING ONLY SEGMENT 148, THE SPECIFICATION STATEMENTS        H0014090
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                           H0014095
C*****  IN COLUMNS  1  AND  2  REMOVED.                                      H0014100
C*****                                                                       H0014105
C=    INTEGER AVI                                                           H0014110
C=    COMPLEX AVC,BVC,CVC,DVC,RVC                                           H0014115
C*****                                                                       H0014120
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.         H1480110
C*****                                                                       H0074035
C*****  WHEN EXECUTING ONLY SEGMENT 148, THE FOLLOWING STATEMENT             H0074040
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.          H0074045
C*****                                                                       H0074050
C=    NUVI = 6                                                              H0074055
C*****                                                                       H0074060
      WRITE (NUVI, 1481)                                                    H1480120
 1481 FORMAT(1H1,1X,36HCREOP - (148) OPERATIONS ON REAL AND/16X,15HCOMPLH1480130
     1EX NUMBERS//  2X,12HASA REF. 6.1//2X, 7HRESULTS//)                   H1480140
      AVC=(1.0,1.0)                                                         H1480150
      AVS=1.0                                                               H1480160
      BVS = 2.0                                                             H1480170
      BVC=(1.0,-1.0)                                                        H1480180
      RVC = (BVS + AVC *(1.+AVC * (-1.+(1.0,1.0)*(-1. +AVC))))/             H1480190
     1 (4.0+BVC*(2.0+BVC*(-AVS+BVC*(0.5+BVC))))                             H1480200
      WRITE (NUVI,1483) RVC                                                 H1480210
1483  FORMAT(              2X,2F8.4//37H  TEST IS POSITIVE IF NUMBERS PRIH1480220
     3NTED/2X,18HABOVE ARE 2.0,-1.0//)                                      H1480230
C*****COMPLEX ARITHMETIC EXPRESSION                                        H1480240
      AVC=(1.60,3.2)                                                        H1480250
      AVS=0.625                                                             H1480260
      BVS=2.0                                                               H1480270
      BVC=(1.0,-1.0)                                                        H1480280
      CVS=2.5                                                               H1480290
      CVC=(2.5,2.5)                                                         H1480300
      DVC = (1.09866,0.45508)                                               H1480310
      AVI = 2                                                               H1480320
      RVC=(AVC*AVS+(1.6,3.2)*AVS-AVC*0.625-(1.6,3.2)*0.625+BVS/BVC          H1480330
     1-BVS/(1.0,-1.0)+2.0/BVC+2.0/(1.0,-1.0)+CVC/CVS-(2.5,2.5)/CVS+         H1480340
     2CVC/2.5+(2.5,2.5)/2.5+DVC**AVI-(1.09866,0.45508)**2+DVC**2+           H1480350
     3(1.09866,0.45508)**AVI)**2/(0.0,72.0)                                 H1480360
      WRITE (NUVI,1482) RVC                                                 H1480370
 1482 FORMAT(2X,2F8.4//   37H  TEST IS POSITIVE IF NUMBERS PRINTED/2X,      H1480380
     1 17HABOVE ARE 1.0,0.0)                                                H1480390
      WRITE (NUVI, 1484)                                                    H1480400
1484  FORMAT(// 39H  ERROR SHOULD NOT EXCEED + OR - .0001 )                 H1480410
C*****    END OF TEST SEGMENT 148                                          H1480420
C*****  WHEN EXECUTING ONLY SEGMENT 148, THE STOP AND END CARDS            H1480430
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                    H1480440
C*****  IN COLUMNS  1  AND  2  REMOVED.                                    H1480450
C=    STOP                                                                  H1480460
C=    END                                                                   H1480470
C*****************************************************************************H1490010
C*****                                                                       H1490020
C*****                          MISC3 - (149)                                H1490030
C*****                                                                       H1490040
C*****************************************************************************H1490050
C*****                   GENERAL PURPOSE                          ASA REF H1490060
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C*****   TO TEST EFFECT OF BLANKS WITHIN STATEMENT,             3.1.4.1 H1490070
C*****   CONTINUATION OF STATEMENT TO MAX.NO.OF LINES,         3.2.4,3.3H1490080
C*****   AND USE OF SPECIAL CHARACTERS TO INDICATE CONTINUATION   3.2.4 H1490090
C*****   LINE -                                                         H1490100
C*****   FOR BASIC INTEGERS AND REAL NUMBERS                            H1490110
C*****                                                                  H1490120
C*****  S P E C I F I C A T I O N S   SEGMENT 149                       H1490130
C*****                                                                  H0014125
C*****  WHEN EXECUTING ONLY SEGMENT 149, THE SPECIFICATION STATEMENTS   H0014130
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                      H0014135
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0014140
C*****                                                                  H0014145
C=    DIMENSION A1S(5),A2S(2,2)                                         H0014150
C=    INTEGER I1I(5),I2I(2,2)                                           H0014155
C*****                                                                  H0014160
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1490140
C*****                                                                  H0074065
C*****  WHEN EXECUTING ONLY SEGMENT 149, THE FOLLOWING STATEMENT        H0074070
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVEO.     H0074075
C*****                                                                  H0074080
C=    NUVI = 6                                                          H0074085
C*****                                                                  H0074090
      WRITE (NUVI,1490)                                                 H1490150
1490  FORMAT(1H1,1X,37HMISC3 - (149) EFFECT OF BLANKS WITHIN/16X,       H1490160
     122HSTMNT ANO CONTINUATION/16X,20HOF STMNT TO 20 LINES//           H1490170
     239H  ASA REFS. - 3.1.4.1  3.2.4.3.3  3.2.4//2X,7HRESULTS  )       H1490180
      J  A  C   V  I        =              1                            H1490190
      I                                                                 H1490200
     =1                                                                 H1490210
     +I                                                                 H1490220
     -(                                                                 H1490230
     *2                                                                 H1490240
     /)                     =2                                          H1490250
      I     2I(   2  ,  1)   =   3                                      H1490260
      A   CV     S    =    -   1  .0    E    0                          H1490270
      A   1   S   (    2)      =     -2      00   .  E   -  2           H1490280
      A   2   S   (   2    ,   1  )    =   - .0 3    E  +  2            H1490290
      K   B                                                             H1490300
     *       CVI                                                        H1490310
     (                 =                                                H1490320
     )                  J     A                                         H1490330
     $                   C           V                                  H1490340
     .                            I                                     H1490350
     ,                                 +         I                      H1490360
     /                                             1    I               H1490370
     =                                                 (   2            H1490380
     1                                                      )           H1490390
     2                                                                 +H1490400
     3I                                                                 H1490410
     4           2                                                      H1490420
     5                  I                                               H1490430
     6                       (                                          H1490440
     7                                 2                                H1490450
     8                                                                  H1490460
     9                                     1                            H1490470
     A                                     )                            H1490480
     B                                                -         6       H1490490
      C             M                                                   H1490500
     =           A                                                      H1490510
     ,                  V       S                                       H1490520
     (                         =                                        H1490530
     $                             A                                    H1490540
     *                                      C                           H1490550
     .                                                V                 H1490560
     )                                                                 SH1490570
     /+                                                                 H1490580
     1    A             1                                               H1490590
     2                   S                                              H1490600
```

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     3                                                                   (H1490610
     42)                                                                 +H1490620
     5          A                                                        H1490630
     6                    2                                              H1490640
     7                                S         (                        H1490650
     8                      2                     ,         1            H1490660
     9)                                                                  H1490670
     A                +                                                  H1490680
     B                                6      .          0                H1490690
      W     RI  T  E    (NU  VI   , 1 49 1 ) KB CVI   , CMA  VS          H1490700
1 491 F O RM A T (//I10//F11.1// 2 X, 35HTEST IS POSITIVE IF NUMBERS PRIH1490710
     1NTED/  2    X,     1   1HABOVE ARE 0)                              H1490720
C*****    END OF TEST SEGMENT 149                                        H1490730
C*****  WHEN EXECUTING ONLY SEGMENT 149, THE STOP AND END CARDS         H1490740
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H1490750
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H1490760
C=    STOP                                                               H1490770
C=    END                                                                H1490780
C***********************************************************************H1500010
C*****                                                                   H1500020
C*****                       MISC4 - (150)                               H1500030
C*****                                                                   H1500040
C***********************************************************************H1500050
C*****                 GENERAL PURPOSE                          ASA REF H1500060
C*****   TO TEST EFFECT OF BLANKS WITHIN STATEMENT,             3.1.4.1 H1500070
C*****   CONTINUATION OF STATEMENT TO 20 LINES,                3.2.4.3.3H1500080
C*****   AND USE OF SPECIAL CHARACTERS TO INDICATE CONTINUATION   3.2.4 H1500090
C*****  CONTINUATION LINE CAN CONTAIN FORTRAN CHARACTERS                 H1500100
C*****  (OTHER THAN C IN COLUMN 1) IN COLUMNS 1 THRU 5 (CLARIFICATION 3)H1500110
C*****                                                                   H1500120
C*****  S P E C I F I C A T I O N S   SEGMENT 150                        H1500130
C*****                                                                   H0014165
C*****  WHEN EXECUTING ONLY SEGMENT 150, THE SPECIFICATION STATEMENTS    H0014170
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE  C=                       H0014175
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0014180
C*****                                                                   H0014185
C=    INTEGER AVI                                                        H0014190
C=    COMPLEX AVC,BVC,CVC,DVC,RVC                                        H0014195
C*****                                                                   H0014200
C*****  O U T O U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H1500140
C*****                                                                   H0074095
C*****  WHEN EXECUTING ONLY SEGMENT 150, THE FOLLOWING STATEMENT         H0074100
C*****  NUVI = 6  MUST HAVE THE C=  IN COLUMNS  1  AND  2  REMOVED.      H0074105
C*****                                                                   H0074110
C=    NUVI = 6                                                           H0074115
C*****                                                                   H0074120
      WRITE (NUVI, 1500)                                                 H1500150
1 500 F  O  RM  A   T(  1   H1  ,   1   X   ,  13   HMISC4 - (150)       H1500160
     X,1X,  2 3  HEFFECT OF BLANKS WITHIN    /   16X,   22HSTMNT AND CONH1500170
     YTINUATION/ 16X,  20HOF STMNT TO 20 LINES//                         H1500180
     I39H  ASA REFS. - 3.1.4.1  3.2.4.3.3  3.2.4//2X,7HRESULTS//)        H1500190
      AVC = (1    .0    ,   1    .0)                                     H1500200
      AVS = 1.      0                                                    H1500210
      B V S      =                    2 .                 0              H1500220
      BVC=   (1 .0     ,-  1 .0)                                         H1500230
      RVC = (B VS +A   V   C*(  1  . +A VC *(  - 1.+     (1     .0,    1 H1500240
     T.  0    )    *(    -       1  .0+    A  V      C )    ))  )   /(   H1500250
     U4  .0    +      BV      C   *      (2     .   0     +     BVC    * H1500260
     V(    -     A    V       S    + B   V  C    *(      0   .  5   +  B H1500270
     WV   C  )        )      )    )                                      H1500280
      RVC          =              RV       C       +(-2.0,       +1     .0)  H1500290
      W   RI    T E       (N  UV    I ,  15  02    )      R     VC       H1500300
1502  FORMAT( 2X, 2F8.4)                                                 H1500310
C*****COMPLEX ARITHMETIC EXPRESSION                                      H1500320
C*****  STATEMENT LABEL NOT REFERENCED                              3.4 H1500330
1503  A                                                                  H1500340
VC=1.+V                                                                  H1500350
     -C                                                                  H1500360
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      *     =                                                          H1500370
      /      (                                                         H1500380
      (1                                                               H1500390
      ).                                                               H1500400
      ,6                                                               H1500410
      .0                                                               H1500420
      I,                                                               H1500430
      J3                                                               H1500440
      K.                                                               H1500450
      L2                                                               H1500460
      M                                 )                              H1500470
C*****  CONTINUE STATEMENT WITH NO LABEL                          3.4 H1500480
       CONTINUE                                                        H1500490
       AVS = 0.625                                                     H1500500
       BVS = 2.0                                                       H1500510
       BVC = (1.0,-1.0)                                                H1500520
       CVS = 2.5                                                       H1500530
       CVC = (2.5,2.5)                                                 H1500540
       DVC = (1.0986841, 0.4550899)                                    H1500550
       AVI = 2                                                         H1500560
       RVC                             =                               H1500570
      B(AVC*AVS                                                        H1500580
      C+(1.6,3.2)                                                      H1500590
      D*AVS-AVC                                                        H1500600
      E*0.625                                                          H1500610
      F-(1.6,3.2)                                                      H1500620
      G*0.625                                                          H1500630
      H+BVS/BVC                                                        H1500640
      I-BVS/(1.0,-1.0)                                                 H1500650
      J+2.0/BVC+2.0/                                                   H1500660
      K(1.0,-1.0)+CVC/CVS                                              H1500670
      L-(2.5,2.5)/CVS+CVC/2.5                                          H1500680
      M+(2.5,2.5)/2.5+DVC**AVI                                         H1500690
      N-(1.0986841,0.4550899)**2                                       H1500700
      O+DVC**2                                                         H1500710
      P+                                                               H1500720
      Q(1.0986841,0.4550899)                                           H1500730
      R**AVI)                                                          H1500740
      S**2/(0.0,72.0)                                                  H1500750
      T         -(1.0,0.0)                                             H1500760
       W   R    I   T   E   (  N U V I  ,    1  5 0 1) R  V  C        H1500770
15 01 FORM  AT(/           /2     X  ,  2    F      8      .        4  H1500780
1501 Z/ /  3     7H  TEST IS POSITIVE IF NUMBERS PRINTED/    2X       H1500790
      =,   1   7     HABOVE ARE 0.0,0.0        )                      H1500800
C*****     END OF TEST SEGMENT 150                                     H1500810
C*****  WHEN EXECUTING ONLY SEGMENT 150, THE STOP AND END CARDS        H1500820
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H1500830
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H1500840
C=     STOP                                                           H1500850
C=     END                                                            H1500860
       STOP                                                           H9999995
       END                                                            H9999999
  SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.   ID 2
  OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT    ID 4
  DATE, INSTALLATION NAME
       DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT    ID 6
C*****     PART10    ************************************************H0004300
C*****                                                               H0004305
C*****     ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS              H0004310
C*****                                                               H0004315
C*****     PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3  H0004320
C*****                                                               H0004325
C*****     JUNE 1973                                                 H0004330
C*****                                                               H0004335
C*****     PART 10 OF 14 PARTS                                       H0004340
C*****                                                               H0004345
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C*****     SEGMENTS INCLUDED                                              H0004350
C*****                                                                    H0004355
C*****       BRFCP - 160 REAL EXTERNAL FUNCTIONS                          H0004360
C*****                                                                    H0004365
C*****         AFS - 400     REAL ARGUMENT                               H0004370
C*****                                                                    H0004375
C*****         BFS - 420     REAL ARGUMENTS                              H0004380
C*****                                                                    H0004385
C*****         CFS - 430     INTEGER ARGUMENT                            H0004390
C*****                                                                    H0004395
C*****         DFS - 440     INTEGER ARGUMENTS                           H0004400
C*****                                                                    H0004405
C*****         EFS - 450     ARRAY NAME                                  H0004410
C*****                                                                    H0004415
C*****         FFS - 460     DIFFERENT TYPES OF ARGUMENTS                H0004420
C*****                                                                    H0004425
C*****       BIFCP - 161 INTEGER EXTERNAL FUNCTIONS                       H0004430
C*****                                                                    H0004435
C*****         IAFI - 401    REAL ARGUMENT                               H0004440
C*****                                                                    H0004445
C*****         IBFI - 421    REAL ARGUMENTS                              H0004450
C*****                                                                    H0004455
C*****         ICFI - 431    INTEGER ARGUMENT                            H0004460
C*****                                                                    H0004465
C*****         IDFI - 441    INTEGER ARGUMENTS                           H0004470
C*****                                                                    H0004475
C*****         IEFI - 451    ARRAY NAME                                  H0004480
C*****                                                                    H0004485
C*****         IFFI - 461    DIFFERENT TYPES OF ARGUMENTS                H0004490
C*****                                                                    H0004495
C*****       FRFCP - 162 REAL FUNCTIONS                                   H0004500
C*****                                                                    H0004505
C*****         GFS - 402     D.P. ARGUMENT                               H0004510
C*****                                                                    H0004515
C*****         HFS - 422     COMPLEX ARGUMENTS                           H0004520
C*****                                                                    H0004525
C*****         IRFS - 432    LOGICAL ARGUMENT                            H0004530
C*****                                                                    H0004535
C*****         JRFS - 442    EXTERNAL PROCEDURE                          H0004540
C*****                                                                    H0004545
C*****         RFS - 452     DIFFERENT TYPES OF ARGUMENTS                H0004550
C*****                                                                    H0004555
C*****       FIFCP - 163 INTEGER FUNCTIONS                                H0004560
C*****                                                                    H0004565
C*****         IFI - 403     D.P. ARGUMENT                               H0004570
C*****                                                                    H0004575
C*****         JFI - 423     COMPLEX ARGUMENTS                           H0004580
C*****                                                                    H0004585
C*****         KFI - 433     LOGICAL ARGUMENT                            H0004590
C*****                                                                    H0004595
C*****         LFI - 443     EXTERNAL PROCEDURE                          H0004600
C*****                                                                    H0004605
C*****         MFI - 453     DIFFERENT TYPES OF ARGUMENTS                H0004610
C*****                                                                    H0004615
C*****       CFCCP - 164 COMPLEX FUNCTIONS                                H0004620
C*****                                                                    H0004625
C*****         AFC - 404     REAL ARGUMENT                               H0004630
C*****                                                                    H0004635
C*****         BFC - 414     INTEGER ARGUMENT                            H0004640
C*****                                                                    H0004645
C*****         CFC - 424     ARRAY NAME                                  H0004650
C*****                                                                    H0004655
C*****         DFC - 434     D.P. ARGUMENT                               H0004660
C*****                                                                    H0004665
C*****         EFC - 444     COMPLEX ARGUMENT                            H0004670
C*****                                                                    H0004675
C*****         FFC - 454     LOGICAL ARGUMENT                            H0004680
C*****                                                                    H0004685
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C*****        HFC - 464    DIFFERENT TYPES OF ARGUMENTS                      H0004690
C*****                                                                        H0014300
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN                 H0014305
C*****  SEGMENTS 160, 161, 162, 163, 164                                      H0014310
C*****  ARE RUN AS ONE MAIN PROGRAM.                                          H0014315
C*****                                                                        H0014320
      DIMENSION  A1S(5), A2S(2,2) , A3S(3,3,3)                              H0014325
      INTEGER I1I(5), I2I(2,2), I3I(2,2,2)                                  H0014330
      REAL JRFS, IRFS                                                       H0014335
      LOGICAL A1B(2), A2B(2,2), A3B(2,2,2), AVB, BVB                        H0014340
      DOUBLE PRECISION AVD, A1D(4), A2D(2,2), A3D(2,2,2)                    H0014345
      COMPLEX AVC, BVC,AFC, BFC, CFC, DFC, EFC, FFC, HFC                    H0014350
     1   , A1C(12), A2C(2,2), A3C(2,2,1)                                    H0014355
      COMMON AXVS, CXVS                                                     H0014360
      EXTERNAL GFS, BFC, IFI                                                H0014365
C*****                                                                      H0014370
C*****  END OF SPECIFICATIONS FOR SEGMENTS                                  H0014375
C*****  160,161, 162, 163, 164                                              H0014380
C*******************************************************************************H1600010
C*****                                                                      H1600020
C*****                    BRFCP - (160)                                     H1600030
C*****                                                                      H1600040
C*******************************************************************************H1600050
C*****  GENERAL PURPOSE                                          ASA REFH1600060
C*****    1.TO TEST REAL FUNCTIONS                                 8.3.1H1600070
C*****    2.DUMMY ARGUMENTS ARE REAL OR INTEGER VARIABLES,OR              H1600080
C*****      ARRAY NAMES                                                   H1600090
C*****    3.FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                          H1600100
C*****    4.IN REFERENCE, ACTUAL ARGUMENTS ARE VARIABLE NAME,             H1600110
C*****      ARRAY NAME, ARRAY ELEMENT NAME, OR AN ARITHMETIC              H1600120
C*****      EXPRESSION                                             8.3.2H1600130
C*****  RESTRICTIONS OBSERVED                                           H1600140
C*****    1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH 8.3.1                   H1600150
C*****    2.LAST SENTENCE OF PARAGRAPH 3.2                                H1600160
C*****    THIS SEGMENT IS TO BE RUN WITH SEGMENTS                         H1600170
C*****     400, 420, 430, 440, 450, 460                    WHICH          H1600180
C*****     CONTAINS ALL FUNCTIONS BEING TESTED HERE.                      H1600190
C*****                                                                    H1600200
C*****  S P E C I F I C A T I O N S  SEGMENT 160                          H1600210
C*****                                                                      H0014385
C*****  WHEN EXECUTING ONLY SEGMENT 160, REMOVE THE PRECEDING               H0014390
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS WHICH                 H0014395
C*****  APPEAR AS COMMENTS MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.     H0014400
C*****                                                                      H0014405
C=    DIMENSION A1S(5),A2S(2,2)                                             H0014410
C*****                                                                      H0014415
C*****  I N P U T  - O U T P U T  T A P E  ASSIGNMENT STATEMENT           H1600220
      IRVI = 5                                                              H0074300
      NUVI = 6                                                              H0074305
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                            H0074310
      WRITE(NUVI,0071)                                                      H0074315
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//                H0074320
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                      H0074325
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                         H0074330
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                      H0074335
     5 23H  VERSION 3     PART 10///)                                       H0074340
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER            H0074345
C       PREPARED BY USER                                                    H0074350
C       READ, NO LIST                                                       H0074355
C       PREPARED BY USER                                                    H0074360
C       READ, NO LIST                                                       H0074365
C       PREPARED BY USER                                                    H0074370
C       READ, NO LIST                                                       H0074375
      READ(IRVI,0070)                                                       H0074380
      READ(IRVI,0072)                                                       H0074385
      READ(IRVI,0073)                                                       H0074390
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)                 H0074395
0072  FORMAT(40H   TEST PROGRAMS                         /)                 H0074400
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0073  FORMAT(40H   FORTRAN COMPILER                        /)                H0074405
      WRITE(NUVI,0070)                                                       H0074410
      WRITE(NUVI,0072)                                                       H0074415
      WRITE(NUVI,0073)                                                       H0074420
      WRITE(NUVI,1604)                                                       H1600230
1604  FORMAT(1H1,1X,37HBRFCP - (160) REAL EXTERNAL FUNCTIONS/                H1600240
     1 /2X,16HASA REF. - 8.3.1//28H  RESULTS SHOULD BE POSITIVE)             H1600250
      IAVI=2                                                                 H1600260
      A1S(1)=1.0                                                             H1600270
      A1S(2)=1.0                                                             H1600280
      A2S(2,2)=1.0                                                           H1600290
      A2S(2,1)=1.0                                                           H1600300
      AVS=1.0                                                                H1600310
      BVS=2.0                                                                H1600320
      CVS=1.0                                                                H1600330
      DVS=1.0                                                                H1600340
      EVS=1.0                                                                H1600350
      IVI=AFS(2.0)-8.0                                                       H1600360
      MAVI=1                                                                 H1600370
      IF(IVI)1600,1601,1600                                                  H1600380
 1605 IVI=BFS(2.0,BVS)-4.0                                                   H1600390
      MAVI=2                                                                 H1600400
      IF(IVI)1600,1601,1600                                                  H1600410
 1606 IVI = CFS(2) -16.0                                                     H1600420
      MAVI=3                                                                 H1600430
      IF(IVI)1600,1601,1600                                                  H1600440
 1607 IVI=DFS(2,IAVI)-1.0                                                    H1600450
      MAVI=4                                                                 H1600460
      IF(IVI)1600,1601,1600                                                  H1600470
 1608 IVI=EFS(A1S)-2.0                                                       H1600480
      MAVI=5                                                                 H1600490
      IF(IVI)1600,1601,1600                                                  H1600500
 1609 IVI=FFS(IAVI,AVS,+2,-1.0,A1S,IAVI,CVS,A1S,1.0,IAVI,A1S,A1S,BVS,DVSH1600510
     1 ,A1S(1),A2S,A2S,A2S,EVS+1.0,IAVI-1) + 1.0                             H1600520
      MAVI=6                                                                 H1600530
      IF(IVI) 1600,1601,1600                                                 H1600540
 1600 WRITE (NUVI,1602)MAVI                                                  H1600550
      GO TO 7001                                                             H1600560
 1601 WRITE (NUVI,1603)MAVI                                                  H1600570
1602  FORMAT (//2X,5HTEST ,I1,12H IS NEGATIVE)                               H1600580
1603  FORMAT (//2X,5HTEST ,I1,12H IS POSITIVE)                               H1600590
 7001 GO TO (1605,1606,1607,1608,1609,7000  ),MAVI                           H1600600
 7000 CONTINUE                                                               H1600610
C*****    END OF TEST SEGMENT 160                                            H1600620
C*****  WHEN EXECUTING ONLY SEGMENT 160, THE STOP  AND  END CARDS            H1600630
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=  IN                   H1600640
C*****  COLUMNS  1  AND  2  REMOVED.                                         H1600650
C=    STOP                                                                   H1600660
C=    END                                                                    H1600670
C*************************************************************************H1610010
C*****                                                                      H1610020
C*****                    BIFCP - (161)                                     H1610030
C*****                                                                      H1610040
C*************************************************************************H1610050
C*****  GENERAL PURPOSE                                          ASA REFH1610060
C*****    1-TO TEST INTEGER FUNCTIONS                             8.3.1H1610070
C*****    2-DUMMY ARGUMENTS ARE REAL OR INTEGER VARIABLES OR              H1610080
C*****      ARRAY NAMES                                           8.3.1H1610090
C*****    3-FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                          H1610100
C*****    4-IN REFERENCE,ACTUAL ARGUMENTS ARE VARIABLE NAME,              H1610110
C*****     ARRAY NAME,ARRAY ELEMENT NAME,OR AN ARITHMETIC                 H1610120
C*****     EXPRESSION                                             8.3.2H1610130
C*****RESTRICTIONS OBSERVED                                               H1610140
C*****    1-ITEMS (2),(3),(4),(5),(6) OF PARAGRAPH 8.3.1                  H1610150
C*****    2-LAST SENTENCE OF PARAGRAPH 3.2                                H1610160
C*****     THIS SEGMENT IS TO BE RUN WITH SEGMENTS                        H1610170
C*****     401, 421, 431, 441, 451, 461  WHICH                            H1610180
C*****     CONTAINS ALL FUNCTIONS BEING TESTED HERE.                      H1610190
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C*****                                                                  H1610200
C*****  S P E C I F I C A T I O N S  SEGMENT 161                        H1610210
C*****                                                                  H0014420
C*****  WHEN EXECUTING ONLY SEGMENT 161, THE SPECIFICATION STATEMENTS   H0014425
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0014430
C*****  IN COLUMNS 1  AND  2  REMOVED.                                  H0014435
C*****                                                                  H0014440
C=     DIMENSION A1S(5)                                                 H0014445
C=     INTEGER I1I(5)                                                   H0014450
C*****                                                                  H0014455
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1610220
C*****                                                                  H0074425
C*****  WHEN EXECUTING ONLY SEGMENT 161, THE STATEMENT  NUVI = 6        H0074430
C*****  MUST HAVE THE C= IN COLUMNS  1  AND 2  REMOVED.                 H0074435
C*****                                                                  H0074440
C=     NUVI = 6                                                         H0074445
C*****                                                                  H0074450
       WRITE(NUVI,1614)                                                 H1610230
1614   FORMAT(1H1,1X,40HBIFCP - (161) INTEGER EXTERNAL FUNCTIONS/       H1610240
      1 16X,26HWITH INTEGER AND REAL ARGS//2X,16HASA REF. - 8.3.1//     H1610250
      228H  RESULTS SHOULD BE POSITIVE)                                 H1610260
       IAVI=2                                                           H1610270
       A1S(1)=1.0                                                       H1610280
       A1S(2)=1.0                                                       H1610290
       I1I(1)=1                                                         H1610300
       I1I(2)=1                                                         H1610310
       AVS=1.0                                                          H1610320
       BVS=2.0                                                          H1610330
       CVS=1.0                                                          H1610340
       DVS=1.0                                                          H1610350
       EVS=1.0                                                          H1610360
       IVI=IAFI(2.0) - 8                                                H1610370
       MAVI=1                                                           H1610380
       IF (IVI) 1610,1611,1610                                          H1610390
 1615  IVI=IBFI(2.0,BVS)-4                                              H1610400
       MAVI=2                                                           H1610410
       IF (IVI) 1610,1611,1610                                          H1610420
 1616  IVI = ICFI(2) - 16                                               H1610430
       MAVI=3                                                           H1610440
       IF (IVI) 1610,1611,1610                                          H1610450
 1617  IVI=IDFI(2,IAVI)-1                                               H1610460
       MAVI=4                                                           H1610470
       IF (IVI) 1610,1611,1610                                          H1610480
1618   IVI=IEFI(I1I)-2                                                  H1610490
       MAVI=5                                                           H1610500
       IF (IVI) 1610,1611,1610                                          H1610510
 1619  IVI=IFFI(IAVI,AVS,2,-1.0,A1S,IAVI,CVS,A1S,1.0,IAVI,A1S,A1S,BVS,  H1610520
      1DVS,A1S(1),A1S,A1S,A1S,EVS+1.0,IAVI-1) + 1                       H1610530
       MAVI=6                                                           H1610540
       IF(IVI) 1610,1611,1610                                           H1610550
 1610  WRITE(NUVI,1612)MAVI                                             H1610560
       GO TO 7002                                                       H1610570
 1611  WRITE(NUVI,1613)MAVI                                             H1610580
1612   FORMAT (//2X,5HTEST ,I1,12H IS NEGATIVE)                         H1610590
1613   FORMAT (//2X,5HTEST ,I1,12H IS POSITIVE)                         H1610600
 7002  GO TO (1615,1616,1617,1618,1619,7003),MAVI                       H1610610
 7003  CONTINUE                                                         H1610620
C*****    END OF TEST SEGMENT 161                                       H1610630
C*****  WHEN EXECUTING ONLY SEGMENT 161, THE  STOP  AND  END  CARDS     H1610640
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1610650
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1610660
C=     STOP                                                             H1610670
C=     END                                                              H1610680
C*******************************************************************************H1620010
C*****                                                                  H1620020
C*****                    FRFCP - (162)                                 H1620030
C*****                                                                  H1620040
C*******************************************************************************H1620050
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C*****                    GENERAL PURPOSE                          ASA REF H1620060
C*****  1.TO TEST REAL FUNCTIONS IN FULL FORTRAN                             H1620070
C*****  2.THIS SEGMENT COMPLETES SEGMENT (160) IN ORDER TO TEST              H1620080
C*****    FOR ALL FEATURES REQUIRED IN FULL FORTRAN                 8.3.1H1620090
C*****  3.DUMMY ARGUMENTS CAN BE INTEGER(TESTED IN 160),REAL(TESTED IN       H1620100
C*****    160),ARRAY NAME(TESTED IN 160),DOUBLE PRECISION,COMPLEX,           H1620110
C*****    LOGICAL OR EXTERNAL PROCEDURE                             8.3.1H1620120
C*****  4.DUMMY ARGUMENTS MAY BE REDEFINED IN SUBPROGRAM(ITEM 4)    8.3.1H1620130
C*****  5.IN REFERENCE, ACTUAL ARGUMENTS MAY BE AS IN (160) AND              H1620140
C*****    BESIDES EXTERNAL PROCEDURE. IN THIS CASE, EXTERNAL        8.3.2H1620150
C*****    PROCEDURE IS REFERENCED BY AN EXTERNAL STATEMENT                   H1620160
C*****  6.USE CAN BE MADE OF ADJUSTABLE DIMENSION                            H1620170
C*****RESTRICTIONS OBSERVED                                                  H1620180
C*****  1.ITEMS (1), (2), (3), (5) OF 8.3.1                                  H1620190
C*****  2.PARAGRAPH 8.3.2, LINE 18 TO END OF PARAGRAPH                       H1620200
C*****     THIS SEGMENT   USES   5 REAL FUNCTIONS                            H1620210
C*****     THIS SEGMENT IS TO BE RUN WITH SEGMENTS                           H1620220
C*****     402, 422, 432, 442, 452   WHICH                                   H1620230
C*****    WHICH CONTAINS ALL FUNCTIONS BEING TESTED HERE                     H1620240
C*****                                                                       H1620250
C*****  S P E C I F I C A T I O N S  SEGMENT 162                             H1620260
C*****                                                                       H0014460
C*****  WHEN EXECUTING ONLY SEGMENT 162, THE SPECIFICATION STATEMENTS        H0014465
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                       H0014470
C*****  IN COLUMNS 1  AND  2  REMOVED.                                       H0014475
C*****                                                                       H0014480
C=     DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                                  H0014485
C=     INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                    H0014490
C=     REAL JRFS,IRFS                                                        H0014495
C=     LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB                            H0014500
C=     DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                       H0014505
C=     COMPLEX AVC,BVC,A1C(12),A2C(2,2),A3C(2,2,1)                           H0014510
C=     COMMON AXVS,CXVS                                                      H0014515
C=     EXTERNAL GFS                                                          H0014520
C*****                                                                       H0014525
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.           H1620270
C*****                                                                       H0074455
C*****  WHEN EXECUTING ONLY SEGMENT 162, THE STATEMENT  NUVI = 6             H0074460
C*****  MUST HAVE THE C= IN COLUMNS  1  AND 2  REMOVED.                      H0074465
C*****                                                                       H0074470
C=     NUVI = 6                                                              H0074475
C*****                                                                       H0074480
       WRITE (NUVI,1624)                                                     H1620280
1624   FORMAT(1H1,1X,33HFRFCP - (162) REAL FUNCTIONS WITH/10X,31HLOGICAL,    H1620290
      1 D.P., AND COMPLEX ARGS//16H  ASA REF. 8.3.1//                        H1620300
      228H  RESULTS SHOULD BE POSITIVE)                                      H1620310
C*****TEST 1                                                                 H1620320
       AVD = 1.0D0                                                           H1620330
       MAVI = 1                                                              H1620340
       IVI = 1.0-GFS(AVD)                                                    H1620350
       IF (IVI) 1620,1621,1620                                               H1620360
C*****TEST 2                                                                 H1620370
 1625  MAVI =2                                                               H1620380
       AVC = (1.0,-1.0)                                                      H1620390
       BVC = (1.0,1.0)                                                       H1620400
       IVI = IFS(AVC,BVC)                                                    H1620410
       IF (IVI) 1620,1621,1620                                               H1620420
C*****TEST 3                                                                 H1620430
 1626  MAVI=3                                                                H1620440
       AVB = .TRUE.                                                          H1620450
       IVI = IRFS(AVB)*2.0                                                   H1620460
       AVB = .FALSE.                                                         H1620470
       JVI = IRFS(AVB)*4.0                                                   H1620480
       LVI = IVI + JVI - 4                                                   H1620490
       IF (LVI) 1620,1621,1620                                               H1620500
C*****TEST 4                                                                 H1620510
 1627  MAVI=4                                                                H1620520
       IVI = JRFS(AVD,GFS)                                                   H1620530
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      IF (IVI-1) 1620,1621,1620                                          H1620540
C*****TEST 5,6,7                                                         H1620550
 1628 AXVS = 1.0                                                         H1620560
      AVS = 1.0                                                          H1620570
      A1S(1) = 1.0                                                       H1620580
      A2S(1,1) = 1.0                                                     H1620590
      A3S(1,1,1) = 1.0                                                   H1620600
      AVB = .FALSE.                                                      H1620610
      A1B(1) = .FALSE.                                                   H1620620
      A2B(1,1) = .FALSE.                                                 H1620630
      A3B(1,1,1) = .FALSE.                                               H1620640
      IAVI = 1                                                           H1620650
      I1I(1) = 1                                                         H1620660
      I2I(1,1) =1                                                        H1620670
      I3I(1,1,1) =1                                                      H1620680
      A1C(1) = (1.0,1.0)                                                 H1620690
      A2C(1,1) = (1.0,1.0)                                               H1620700
      A3C(1,1,1) = (-2.0,-2.0)                                           H1620710
      AVD = 1.000                                                        H1620720
      A1D(1) = 1.0D0                                                     H1620730
      A2O(1,1) = 1.000                                                   H1620740
      A3D(1,1,1) = 1.0D0                                                 H1620750
      IVI= RFS(AVS,IAVI,AVB,AVC,AVD,A1S,A2S,A3S,I1I,I2I,I3I,A1B,A2B,A3B,H1620760
     1 A1C,A2C,A3C,A1D,A2D,A3D,GFS)                                      H1620770
      MAVI = 5                                                           H1620780
      IF (IVI) 1620,1621,1620                                            H1620790
 1629 MAVI = 6                                                           H1620800
      BVB = AVB.ANO.A1B(1).AND.A2B(1,1).AND.A3B(1,1,1)                   H1620810
      IF (BVB) GO TO 1621                                                H1620820
      GD TO 1620                                                         H1620830
 7010 IVI=REAL(AVC)                                                      H1620840
      JVI = AIMAG(AVC)                                                   H1620850
      MAVI = 7                                                           H1620860
      BVB = IVI.EQ.0.AND.JVI.EQ.0                                        H1620870
      IF (BVB) GD TO 1621                                                H1620880
1620  WRITE (NUVI,1622) MAVI                                             H1620890
      GO TO 7011                                                         H1620900
1621  WRITE (NUVI,1623) MAVI                                             H1620910
 1622 FORMAT(//2X,5HTEST ,I1,13H IS NEGATIVE.)                           H1620920
 1623 FORMAT (//2X,5HTEST ,I1,13H IS POSITIVE.)                          H1620930
 7011 GD TD (1625,1626,1627,1628,1629,7010,7012),MAVI                    H1620940
 7012 CONTINUE                                                           H1620950
C*****      END OF TEST SEGMENT 162                                      H1620960
C*****   WHEN EXECUTING ONLY SEGMENT 162, THE  STOP  AND  END  CARDS     H1620970
C*****   WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1620980
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 H1620990
C=    STOP                                                               H1621000
C=    END                                                                H1621010
C*************************************************************************H1630010
C*****                                                                   H1630020
C*****                      FIFCP - (163)                                H1630030
C*****                                                                   H1630040
C*************************************************************************H1630050
C*****                      GENERAL PURPOSE                    ASA REF  H1630060
C*****   1.TO TEST INTEGER FUNCTIONS IN FULL FORTRAN                     H1630070
C*****   2.THIS SEGMENT COMPLETES SEGMENT (161) IN ORDER TO TEST         H1630080
C*****     FOR ALL FEATURES REQUIRED IN FULL FORTRAN.          8.3.1     H1630090
C*****   3.DUMMY ARGUMENTS CAN BE INTEGER(TESTED IN 161),REAL(TESTED     H1630100
C*****     IN 161),DOUBLE PRECISION,COMPLEX,LOGICAL,OR EXTERNAL PROCEDUREH1630110
C*****   4.DUMMY ARGUMENTS MAY BE REDEFINED IN SUBPROGRAM(ITEM 4)        H1630120
C*****   5. IN REFERENCE,ACTUAL ARGUMENTS MAY BE AS IN (161) AND BESIDES H1630130
C*****     EXTERNAL PROCEDURE.IN THIS CASE,EXTERNAL PROCEDURE IS         H1630140
C*****     REFERENCED BY AN EXTERNAL STATEMENT.                          H1630150
C*****   6. USE CAN BE MADE OF ADJUSTABLE DIMENSION.                     H1630160
C*****RESTRICTIONS OBSERVED                                              H1630170
C*****    1.ITEMS (1),(2),(3),(5), OF 8.3.1                              H1630180
C*****   2 PARAGRAPH 8.3.2,LINE 18 TO END OF PARAGRAPH                   H1630190
C*****      THIS SEGMENT   USES   5 INTEGER FUNCTIONS                    H1630200
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C*****      THIS SEGMENT IS TO BE RUN WITH SEGMENTS                          H1630210
C*****      403, 423, 433, 443, 453                          WHICH           H1630220
C*****     WHICH CONTAINS ALL FUNCTIONS BEING TESTED HERE                    H1630230
C*****                                                                       H1630240
C*****  S P E C I F I C A T I O N S  SEGMENT 163                             H1630250
C*****                                                                       H0014530
C*****  WHEN EXECUTING ONLY SEGMENT 163, THE SPECIFICATION STATEMENTS        H0014535
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                       H0014540
C*****  IN COLUMNS 1  AND  2  REMOVED.                                       H0014545
C*****                                                                       H0014550
C=     EXTERNAL IFI                                                         H0014555
C=     DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                                 H0014560
C=     INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                   H0014565
C=     LOGICAL AVB,BVB,A1B(2),A2B(2,2),A3B(2,2,2)                           H0014570
C=     DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                      H0014575
C=     COMPLEX AVC,BVC,A1C(12),A2C(2,2),A3C(2,2,1)                          H0014580
C=     COMMON AXVS,CXVS                                                     H0014585
C*****                                                                       H0014590
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.          H1630260
C*****                                                                       H0074485
C*****  WHEN EXECUTING ONLY SEGMENT 163, THE STATEMENT  NUVI = 6             H0074490
C*****  MUST HAVE THE C= IN COLUMNS  1  AND 2  REMOVED.                      H0074495
C*****                                                                       H0074500
C=     NUVI = 6                                                             H0074505
C*****                                                                       H0074510
       WRITE(NUVI,1634)                                                     H1630270
 1634  FORMAT (1H1,1X,33HFIFCP - (163) INTEGER FUNCTION IN/ 16X,            H1630280
      1 12HFULL FORTRAN//2X,                                               H1630290
      2 14HASA REF. 8.3.1//28H  RESULTS SHOULD BE POSITIVE)                H1630300
C***** TEST 1                                                              H1630310
       AVD=1.0D0                                                           H1630320
       MAVI=1                                                              H1630330
       IVI=1-IFI(AVD)                                                      H1630340
       IF (IVI) 1630,1631,1630                                             H1630350
C***** TEST 2                                                              H1630360
 1635  MAVI=2                                                              H1630370
       AVC=(1.0, 1.0)                                                      H1630380
       BVC=(1.0,-1.0)                                                      H1630390
       IVI=JFI(AVC,BVC)                                                    H1630400
       IF (IVI) 1630,1631,1630                                             H1630410
C*****TEST 3                                                               H1630420
 1636  MAVI=3                                                              H1630430
       AVB=.TRUE.                                                          H1630440
       IVI=KFI(AVB)*2                                                      H1630450
       AVB=.FALSE.                                                         H1630460
       JVI=IVI+KFI(AVB)-4                                                  H1630470
       IF (JVI) 1630,1631,1630                                             H1630480
C***** TEST 4                                                              H1630490
 1637  MAVI=4                                                              H1630500
       IVI=LFI(AVD,IFI)-1                                                  H1630510
       IF (IVI) 1630,1631,1630                                             H1630520
C***** TESTS 5,6,7                                                         H1630530
 1638  AXVS=1.0                                                            H1630540
       AVS = 1.                                                            H1630550
       A1S(1)=1.0                                                          H1630560
       A2S(1,1)=1.0                                                        H1630570
       A3S(1,1,1)=1.0                                                      H1630580
       IAVI=1                                                              H1630590
       I1I(1) = 1                                                          H1630600
       I2I(1,1)=1                                                          H1630610
       I3I(1,1,1)=1                                                        H1630620
       A1C(1)=(1.0,1.0)                                                    H1630630
       A2C(1,1)=(1.0,1.0)                                                  H1630640
       A3C(1,1,1)=(-2.0,-2.0)                                              H1630650
       AVD=1.0D0                                                           H1630660
       A1D(1)=1.0D0                                                        H1630670
       A2D(1,1)=1.0D0                                                      H1630680
       A3D(1,1,1)=1.0D0                                                    H1630690
```

```
      IVI=MFI(AVS,IAVI,AVB,AVC,AVD,A1S,A2S,A3S,I1I,I2I,I3I,A1B,A2B,A3B, H1630700
     1A1C,A2C,A3C,A1D,A2D,A3D,IFI)                                      H1630710
      MAVI=5                                                            H1630720
      IF (IVI) 1630,1631,1630                                           H1630730
 1639 MAVI=6                                                            H1630740
      BVB=AVB.AND.A1B(1).AND.A2B(1,1).AND.A3B(1,1,1)                    H1630750
      IF (BVB) GO TO 1631                                               H1630760
      IF (.NOT.BVB) GO TO 1630                                          H1630770
 7007 IVI=REAL(AVC)                                                     H1630780
      JVI=AIMAG(AVC)                                                    H1630790
      MAVI=7                                                            H1630800
      IF (IVI+JVI) 1630,1631,1630                                       H1630810
 1630 WRITE(NUVI,1632) MAVI                                             H1630820
      GO TO 7008                                                        H1630830
 1631 WRITE(NUVI,1633) MAVI                                             H1630840
 1632 FORMAT (//2X,5HTEST ,I2,12H IS NEGATIVE)                          H1630850
 1633 FORMAT(//2X,5HTEST , I2,12H IS POSITIVE)                          H1630860
 7008      GO TO (1635,1636,1637,1638,1639,7007,7009),MAVI              H1630870
 7009 CONTINUE                                                          H1630880
C*****    END OF TEST SEGMENT 163                                       H1630890
C*****  WHEN EXECUTING ONLY SEGMENT 163, THE  STOP  AND  END  CARDS     H1630900
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1630910
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1630920
C=    STOP                                                              H1630930
C=    END                                                               H1630940
C*******************************************************************************H1640010
C*****                                                                 H1640020
C*****                          CFCCP-(164)                            H1640030
C*****                                                                 H1640040
C*******************************************************************************H1640050
C*****                      GENERAL PURPOSE                      ASA REFH1640060
C*****    1.TO TEST COMPLEX FUNCTIONS IN FULL FORTRAN             8.3.1 H1640070
C*****    2.DUMMY ARGUMENTS ARE REAL,INTEGER,COMPLEX,LOGICAL,           H1640080
C*****    DOUBLE PRECISION,EXTERNAL PROCEDURE,ARRAY NAME.               H1640090
C*****    3.FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                        H1640100
C*****    4.IN REFERENCE ACTUAL ARGUMENTS ARE VARIABLE NAME             H1640110
C*****    ARRAY NAME,ARRAY ELEMENT NAME,ARITHMETIC EXPRESSION           H1640120
C*****    EXTERNAL PROCEDURE                                            H1640130
C*****    6.USE CAN BE MADE OF ADJUSTABLE DIMENTION                     H1640140
C*****    7.ARGUMENTS CAN BE PASSED THROUGH COMMON                      H1640150
C*****RESTRICTIONS OBSERVED                                            H1640160
C*****    1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH                       H1640170
C*****    2.LAST SENTENCE OF PARAGRAPH 3.2                              H1640180
C*****    THIS SEGMENT   USES   8 COMPLEX FUNCTIONS                     H1640190
C*****     THIS SEGMENT IS TO BE RUN WITH SEGMENTS                      H1640200
C*****     404, 414, 424, 434, 444, 454, 464                            H1640210
C*****    WHICH CONTAIN  ALL FUNCTIONS BEING TESTED HERE                H1640220
C*****                                                                  H1640230
C*****  S P E C I F I C A T I O N S  SEGMENT 164                        H1640240
C*****                                                                  H0014595
C*****  WHEN EXECUTING ONLY SEGMENT 164, THE SPECIFICATION STATEMENTS   H0014600
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0014605
C*****  IN COLUMNS 1  AND  2  REMOVED.                                  H0014610
C*****                                                                  H0014615
C=    DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                              H0014620
C=    INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                H0014625
C=    LOGICAL AVB,A1B(2),A3B(2,2,2),A2B(2,2),BVB                        H0014630
C=    DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                   H0014635
C=    COMPLEX AFC,BFC,CFC,DFC,EFC,FFC,HFC,AVC,BVC                       H0014640
C=   1,A1C(12),A2C(2,2),A3C(2,2,1)                                     H0014645
C=    COMMON AXVS,CXVS                                                  H0014650
C=    EXTERNAL BFC                                                      H0014655
C*****                                                                  H0014660
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1640250
C*****                                                                  H0074515
C*****  WHEN EXECUTING ONLY SEGMENT 164, THE STATEMENT  NUVI = 6        H0074520
C*****  MUST HAVE THE C= IN COLUMNS  1  AND 2  REMOVED.                 H0074525
C*****                                                                  H0074530
```

```
C=     NUVI = 6                                                          H0074535
C*****                                                                   H0074540
       WRITE(NUVI,1641)                                                  H1640260
 1641  FORMAT(1H1,1X,31HCFCCP - (164) COMPLEX FUNCTIONS//2X,             H1640270
     1 21HASA REFS. 8.3.1,8.3.2//2X, 7HRESULTS)                          H1640280
C***** TEST 1                                                            H1640290
       BVC=AFC(1.0)                                                      H1640300
       MAVI=1                                                            H1640310
       WRITE(NUVI,1642) BVC,MAVI                                         H1640320
1642   FORMAT(1H0,2F5.1,9H -- TEST ,I2,20H POSITIVE IF 0.0,0.0)          H1640330
C***** TEST 2                                                            H1640340
        MAVI=2                                                           H1640350
       BVC= BFC(1)-(1.0,1.0)                                             H1640360
       WRITE(NUVI,1642)BVC,MAVI                                          H1640370
C***** TEST 3                                                            H1640380
        MAVI=3                                                           H1640390
       A1S(1)=1.0                                                        H1640400
       A1S(2)=1.0                                                        H1640410
       BVC=CFC(A1S)                                                      H1640420
       WRITE(NUVI,1642)BVC,MAVI                                          H1640430
C***** TEST 4                                                            H1640440
       MAVI=4                                                            H1640450
       BVC = DFC (1.D0)                                                  H1640460
       WRITE(NUVI,1642)BVC,MAVI                                          H1640470
C*****TEST 5                                                             H1640480
       MAVI=5                                                            H1640490
       AVC=(1.0,1.0)                                                     H1640500
       BVC=EFC(AVC)                                                      H1640510
       WRITE(NUVI,1642)BVC,MAVI                                          H1640520
C*****TEST 6                                                             H1640530
       MAVI=6                                                            H1640540
       AVB=.TRUE.                                                        H1640550
       BVC=FFC(AVB)-(1.0,1.0)                                            H1640560
       WRITE(NUVI,1642)BVC,MAVI                                          H1640570
C***** TEST 7                                                            H1640580
        MAVI=7                                                           H1640590
        AVB=.FALSE.                                                      H1640600
        BVC=FFC(AVB)                                                     H1640610
        WRITE(NUVI,1642)BVC,MAVI                                         H1640620
C***** TEST 8,9,10                                                       H1640630
       IVI=1                                                             H1640640
       AVD=1.0D0                                                         H1640650
       A1D(1)=1.0D0                                                      H1640660
       A2D(1,1)=1.0D0                                                    H1640670
       A3D(1,1,1)=1.0D0                                                  H1640680
       AVS=1.0                                                           H1640690
       A1S(1)=1.0                                                        H1640700
       A2S(1,1)=1.0                                                      H1640710
       A3S(1,1,1)=1.0                                                    H1640720
       A1C(1)=(1.0,1.0)                                                  H1640730
       A2C(1,1)=(1.0,1.0)                                                H1640740
       A3C(1,1,1)=(1.0,1.0)                                              H1640750
       I1I(1)=1                                                          H1640760
       I2I(1,1)=1                                                        H1640770
       I3I(1,1,1)=1                                                      H1640780
       AVC = (0.0,0.0)                                                   H1640790
       BVC= HFC(AVS,IVI,AVB,AVC,AVD,A1S,A2S,A3S,I1I,I2I,I3I,A1B,A2B,A3B, H1640800
      1A1C,A2C,A3C,A1D,A2D,A3D,BFC)                                      H1640810
       MAVI = 8                                                          H1640820
       WRITE (NUVI,1642) BVC,MAVI                                        H1640830
       MAVI=9                                                            H1640840
       IF(AXVS) 1643,1644,1643                                           H1640850
 1648  MAVI = 10                                                         H1640860
       BVB=AVB.AND.A1B(1).AND.A2B(1,1).AND. A3B(1,1,1)                   H1640870
       IF (BVB) GO TO 1644                                               H1640880
 1643  WRITE(NUVI,1645)MAVI                                              H1640890
       GO TO 1647                                                        H1640900
 1644  WRITE(NUVI,1646)MAVI                                              H1640910
```

```
1645  FORMAT(/15X,5HTEST ,I2,12H IS NEGATIVE)                          H1640920
1646  FORMAT(/15X,5HTEST ,I2,12H IS POSITIVE)                          H1640930
1647  IF (MAVI  - 9) 1649,1648,1649                                    H1640940
1649  CONTINUE                                                         H1640950
C*****    END OF TEST SEGMENT 164                                      H1640960
C*****  WHEN EXECUTING ONLY SEGMENT 164, THE  STOP  AND  END  CARDS    H1640970
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H1640980
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H1640990
C=    STOP                                                             H1641000
C=    END                                                              H1641010
      STOP                                                             H9999995
      END                                                              H9999999
C*******************************************************************************H4000010
C*****                                                                H4000020
C*****                          AFS - (400)                           H4000030
C*****                                                                H4000040
C*******************************************************************************H4000050
C*****REAL FUNCTION OF REAL ARGUMENT (TEST 1)                         H4000060
      FUNCTION  AFS(AWVS)                                              H4000070
      AFS=4.0*AWVS                                                     H4000080
      RETURN                                                           H4000090
      END                                                              H4000100
C*******************************************************************************H4200010
C*****                                                                H4200020
C*****                          BFS - (420)                           H4200030
C*****                                                                H4200040
C*******************************************************************************H4200050
C*****REAL FUNCTION OF REAL ARGUMENTS (TEST 2)                        H4200060
      FUNCTION BFS(AWVS,BWVS)                                          H4200070
      BFS=AWVS+BWVS                                                    H4200080
      RETURN                                                           H4200090
      END                                                              H4200100
C*******************************************************************************H4300010
C*****                                                                H4300020
C*****                          CFS - (430)                           H4300030
C*****                                                                H4300040
C*******************************************************************************H4300050
C*****REAL FUNCTION OF INTEGER ARGUMENT  (TEST 3)                     H4300060
      FUNCTION  CFS(IWVI)                                              H4300070
      CFS=4.0**IWVI                                                    H4300080
      RETURN                                                           H4300090
      END                                                              H4300100
C*******************************************************************************H4400010
C*****                                                                H4400020
C*****                          DFS - (440)                           H4400030
C*****                                                                H4400040
C*******************************************************************************H4400050
C*****REAL FUNCTION OF INTEGER ARGUMENTS (TEST 4)                     H4400060
      FUNCTION DFS(IWVI,JWVI)                                          H4400070
      KVI  = IWVI - JWVI                                               H4400080
      DFS=4.6**KVI                                                     H4400090
      RETURN                                                           H4400100
      END                                                              H4400110
C*******************************************************************************H4500010
C*****                                                                H4500020
C*****                          EFS - (450)                           H4500030
C*****                                                                H4500040
C*******************************************************************************H4500050
C*****REAL FUNCTION OF ARRAY NAME(TEST 5)                             H4500060
      FUNCTION EFS(AW1S)                                               H4500070
      DIMENSION AW1S(2)                                                H4500080
      EFS=AW1S(1)+AW1S(2)                                              H4500090
      RETURN                                                           H4500100
      END                                                              H4500110
C*******************************************************************************H4600010
C*****                                                                H4600020
C*****                          FFS - (460)                           H4600030
C*****                                                                H4600040
```

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C*******************************************************************************H4600050
C*****REAL FUNCTION OF DIFFERENT TYPES OF ARGUMENTS(TEST 6)                      H4600060
      FUNCTION FFS(IWVI,AWVS,JWVI,BWVS,AW1S,KWVI,CWVS,BW1S,DWVS,LWVI,           H4600070
     1CW1S,DW1S,EWVS,FWVS,GWVS,BW2S,CW2S,DW2S,HWVS,MWVI)                         H4600080
      DIMENSION  AW1S(2),BW1S(2),CW1S(2),DW1S(2),BW2S(2,2),CW2S(2,2),           H4600090
     1DW2S(2,2)                                                                 H4600100
      FFS=AWVS**IWVI-BWVS**JWVI+AW1S(1)-CWVS**KWVI+BW1S(2)-DWVS+CW1S(1)         H4600110
     1**LWVI+DW1S(1)-EWVS+FWVS-GWVS+BW2S(2,1)-CW2S(2,2)+DW2S(2,2)-HWVS**         H4600120
     2MWVI                                                                      H4600130
      RETURN                                                                    H4600140
      END                                                                       H4600150
C*******************************************************************************H4010010
C*****                                                                          H4010020
C*****                          IAFI - (401)                                    H4010030
C*****                                                                          H4010040
C*******************************************************************************H4010050
C*****INTEGER FUNCTION OF REAL ARGUMENT (TEST 1)                                H4010060
      FUNCTION IAFI(AWVS)                                                       H4010070
      IAFI=4.0*AWVS                                                             H4010080
      RETURN                                                                    H4010090
      END                                                                       H4010100
C*******************************************************************************H4210010
C*****                                                                          H4210020
C*****                          IBFI - (421)                                    H4210030
C*****                                                                          H4210040
C*******************************************************************************H4210050
C*****INTEGER FUNCTION OF TWO REAL ARGUMENTS (TEST 2)                           H4210060
      FUNCTION IBFI(AWVS,BWVS)                                                  H4210070
      IBFI=AWVS+BWVS                                                            H4210080
      RETURN                                                                    H4210090
      END                                                                       H4210100
C*******************************************************************************H4310010
C*****                                                                          H4310020
C*****                          ICFI - (431)                                    H4310030
C*****                                                                          H4310040
C*******************************************************************************H4310050
C*****INTEGER FUNCTION OF INTEGER ARGUMENT(TEST 3)                              H4310060
      FUNCTION ICFI(IWVI)                                                       H4310070
      ICFI=4.0**IWVI                                                            H4310080
      RETURN                                                                    H4310090
      END                                                                       H4310100
C*******************************************************************************H4410010
C*****                                                                          H4410020
C*****                          IDFI - (441)                                    H4410030
C*****                                                                          H4410040
C*******************************************************************************H4410050
C*****INTEGER FUNCTION OF INTEGER ARGUMENTS (TEST 4)                            H4410060
      INTEGER FUNCTION IDFI (IWVI, JWVI)                                        H4410070
      REAL KUVS                                                                 H4410080
      IDFI = IWVI - JWVI                                                        H4410090
      IDFI = KUVS ** IDFI                                                       H4410100
      RETURN                                                                    H4410110
      DATA KUVS /4.6/                                                           H4410120
      E N D                                                                     H4410130
C*******************************************************************************H4510010
C*****                                                                          H4510020
C*****                          IEFI - (451)                                    H4510030
C*****                                                                          H4510040
C*******************************************************************************H4510050
C*****INTEGER FUNCTION OF ARRAY NAME (TEST 5)                                   H4510060
      FUNCTION IEFI(IAW1I)                                                      H4510070
      DIMENSION IAW1I(2)                                                        H4510080
      IEFI=IAW1I(1)+IAW1I(2)                                                    H4510090
      RETURN                                                                    H4510100
      END                                                                       H4510110
C*******************************************************************************H4610010
C*****                                                                          H4610020
C*****                          IFFI - (461)                                    H4610030
```

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C*****                                                                  H4610040
C*********************************************************************H4610050
C*****INTEGER FUNCTION OF DIFFERENT TYPES OF ARGUMENTS(TEST 6)          H4610060
      FUNCTION IFFI(IWVI,AWVS,JWVI,BWVS,AW1S,KWVI,CWVS,BW1S,DWVS,LWVI,  H4610070
     1CW1S,DW1S,EWVS,FWVS,GWVS,EW1S,GW1S,HW1S,HWVS,MWVI)                H4610080
      OIMENSION AW1S(2),BW1S(2),CW1S(2),DW1S(2),EW1S(5), GW1S(5),       H4610090
     1 HW1S(5)                                                          H4610100
      IFFI=AWVS**IWVI-BWVS**JWVI+AW1S(1)-CWVS**KWVI+BW1S(2)-DWVS+CW1S(1)H4610110
     1**LWVI+DW1S(1)-EWVS+FWVS-GWVS+EW1S(1)  -GW1S(2)  +HW1S(2)  -HWVS**H4610120
     2MWVI                                                              H4610130
      RETURN                                                            H4610140
      ENO                                                               H4610150
C*********************************************************************H4020010
C*****                                                                  H4020020
C*****                          GFS - (402)                             H4020030
C*****                                                                  H4020040
C*********************************************************************H4020050
C***** REAL FUNCTION OF DOUBLE PRECISION ARGUMENT (TEST 1)              H4020060
      FUNCTION  GFS(AWVD)                                               H4020070
      OOUBLE PRECISION  AWVD                                            H4020080
      GFS = AWVD                                                        H4020090
      RETURN                                                            H4020100
      END                                                               H4020110
C*********************************************************************H4220010
C*****                                                                  H4220020
C*****                          HFS - (422)                             H4220030
C*****                                                                  H4220040
C*********************************************************************H4220050
C*****REAL FUNCTION OF COMPLEX ARGUMENT (TEST 2)                        H4220060
      FUNCTION HFS(AWVC,BWVC)                                           H4220070
      COMPLEX  AWVC,BWVC,CVC                                            H4220080
      CVC  = AWVC * BWVC                                                H4220090
      HFS = AIMAG(CVC)                                                  H4220100
      RETURN                                                            H4220110
      ENO                                                               H4220120
C*********************************************************************H4320010
C*****                                                                  H4320020
C*****                          IRFS -  (432)                           H4320030
C*****                                                                  H4320040
C*********************************************************************H4320050
C*****REAL FUNCTION OF LOGICAL ARGUMENT (TEST 3)                        H4320060
      REAL FUNCTION IRFS(AWVB)                                          H4320070
      LOGICAL  AWVB                                                     H4320080
      IF (AWVB) GO TO 4321                                              H4320090
4320  IF (.NOT. AWVB) GO TO 4322                                        H4320100
      RETURN                                                            H4320110
4321  IRFS = 2.0                                                        H4320120
      GO TO 4320                                                        H4320130
4322  IRFS = 0.0                                                        H4320140
      RETURN                                                            H4320150
      END                                                               H4320160
C*********************************************************************H4420010
C*****                                                                  H4420020
C*****                          JRFS - (442)                            H4420030
C*****                                                                  H4420040
C*********************************************************************H4420050
C*****REAL FUNCTION OF EXTERNAL PROCEDURE (TEST 4)                      H4420060
      REAL FUNCTION JRFS( BWVD,BWFS)                                    H4420070
      OOUBLE PRECISION BWVO                                             H4420080
      JRFS = BWFS(BWVD)                                                 H4420090
      RETURN                                                            H4420100
      END                                                               H4420110
C*********************************************************************H4520010
C*****                                                                  H4520020
C*****                          RFS - (452)                             H4520030
C*****                                                                  H4520040
C*********************************************************************H4520050
C*****REAL FUNCTION OF OIFFERENT TYPES OF ARGUMENTS. USE IS MAOE OF     H4520060
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C*****ADJUSTABLE DIMENSION (TEST 5, 6, 7)                              H4520070
      FUNCTION RFS(AWVS,IWVI,AWVB,AWVC,AWVD,AW1S,AW2S,AW3S,IW1I,IW2I,   H4520080
     1IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D,AW3D,AWFS)           H4520090
      LOGICAL AWVB,AW1B,AW2B,AW3B                                      H4520100
      COMPLEX AWVC,AW1C,AW2C,AW3C                                      H4520110
      DOUBLE PRECISION AWVD, AW1D,AW2D,AW3D                            H4520120
      DIMENSION AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI) ,      H4520130
     1          IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI) ,      H4520140
     2          AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI) ,      H4520150
     3          AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI) ,      H4520160
     4          AW1D(IWVI),AW2D(IWVI,IWVI),AW3D(IWVI,IWVI,IWVI)        H4520170
      COMMON BXVS                                                      H4520180
      RFS =AWVS**IWVI+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I     H4520190
     1 (IWVI,IWVI)+AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)-AWVD+    H4520200
     2 AW1D(IWVI)-AW2D(IWVI,IWVI)-AW3D(IWVI,IWVI,IWVI)+AWFS(AWVD)-BXVS H4520210
      AWVB = IWVI.EQ.1                                                 H4520220
      AW1B(IWVI) = IWVI .EQ. 1                                         H4520230
      AW2B(IWVI,IWVI) = IWVI .EQ. 1                                    H4520240
      AW3B(IWVI,IWVI,IWVI) = IWVI.EQ.1                                 H4520250
      AWVC = AW1C(IWVI) +AW2C(IWVI,IWVI)+AW3C(IWVI,IWVI,IWVI)          H4520260
      RETURN                                                           H4520270
C*****    END OF TEST SEGMENT 402                                      H4520280
      END                                                              H4520290
C*******************************************************************************H4030010
C*****                                                                H4030020
C*****                          IFI - (403)                           H4030030
C*****                                                                H4030040
C*******************************************************************************H4030050
C***** INTEGER FUNCTION OF DOUBLE PRECISION ARGUMENT(TEST 1)           H4030060
      FUNCTION IFI(AWVD)                                               H4030070
      DOUBLE PRECISION AWVD                                            H4030080
      IFI=AWVD                                                         H4030090
      RETURN                                                           H4030100
      END                                                              H4030110
C*******************************************************************************H4230010
C*****                                                                H4230020
C*****                          JFI - (423)                           H4230030
C*****                                                                H4230040
C*******************************************************************************H4230050
C*****INTEGER FUNCTION OF COMPLEX ARGUMENT(TEST 2)                     H4230060
      FUNCTION JFI(AWVC,BWVC)                                          H4230070
      COMPLEX AWVC,BWVC,CVC                                            H4230080
      CVC =AWVC*BWVC                                                   H4230090
      JFI=AIMAG(CVC)                                                   H4230100
      RETURN                                                           H4230110
      END                                                              H4230120
C*******************************************************************************H4330010
C*****                                                                H4330020
C*****                          KFI - (433)                           H4330030
C*****                                                                H4330040
C*******************************************************************************H4330050
C*****INTEGER FUNCTION OF LOGICAL ARGUMENT(TEST 3)                     H4330060
      FUNCTION KFI(AWVB)                                               H4330070
      LOGICAL AWVB                                                     H4330080
      IF (AWVB) GO TO 4331                                             H4330090
4330  IF (.NOT.AWVB) GO TO 4332                                        H4330100
      RETURN                                                           H4330110
4331  KFI = 2                                                          H4330120
      GO TO 4330                                                       H4330130
4332  KFI = 0                                                          H4330140
      RETURN                                                           H4330150
      END                                                              H4330160
C*******************************************************************************H4430010
C*****                                                                H4430020
C*****                          LFI - (443)                           H4430030
C*****                                                                H4430040
C*******************************************************************************H4430050
C*****INTEGER FUNCTION OF EXTERNAL PROCEDURE(TEST 4)                   H4430060
```

```
      FUNCTION LFI(BWVD,IWFI)                                           H4430070
      DOUBLE PRECISION BWVD                                             H4430080
      LFI=IWFI(BWVD)                                                    H4430090
      RETURN                                                            H4430100
      END                                                               H4430110
C*************************************************************************H4530010
C*****                                                                  H4530020
C*****                          MFI - (453)                             H4530030
C*****                                                                  H4530040
C*************************************************************************H4530050
C*****INTEGER FUNCTION OF DIFFERENT TYPES OF ARGUMENTS.USE IS MADE OF   H4530060
C***** ADJUSTABLE DIMENSION(TEST 5,6,7)                                 H4530070
      FUNCTION MFI(AWVS,IWVI,AWVB,AWVC,AWVD,AW1S,AW2S,AW3S,IW1I,IW2I,   H4530080
     1IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D,AW3D,IWFI)           H4530090
      DOUBLE PRECISION AWVD,AW1D,AW2D,AW3D                              H4530100
      LOGICAL AWVB,AW1B,AW2B,AW3B                                       H4530110
      COMPLEX AWVC,AW1C,AW2C,AW3C                                       H4530120
      DIMENSION AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI) ,       H4530130
     1          IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI) ,       H4530140
     2          AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI),        H4530150
     3          AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI)  ,      H4530160
     4          AW1D(IWVI),AW2D(IWVI,IWVI),AW3D(IWVI,IWVI,IWVI)         H4530170
      COMMON BXVS                                                       H4530180
      MFI =AWVS**IWVI+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I      H4530190
     1 (IWVI,IWVI)+AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)-AWVD+     H4530200
     2 AW1D(IWVI)-AW2D(IWVI,IWVI)-AW3D(IWVI,IWVI,IWVI)+BXVS**IWFI(AWVD) H4530210
     3 -1.0                                                             H4530220
      AWVB=IWVI.EQ.1                                                    H4530230
      AW1B(IWVI) = IWVI .EQ. 1                                          H4530240
      AW2B(IWVI,IWVI) = IWVI.EQ.1                                       H4530250
      AW3B(IWVI,IWVI,IWVI) = IWVI.EQ.1                                  H4530260
      AWVC = AW1C(IWVI) +AW2C(IWVI,IWVI)+AW3C(IWVI,IWVI,IWVI)           H4530270
      RETURN                                                            H4530280
      END                                                               H4530290
C*************************************************************************H4040010
C*****                                                                  H4040020
C*****                          AFC - (404)                             H4040030
C*****                                                                  H4040040
C*************************************************************************H4040050
C*****COMPLEX FUNCTION OF REAL ARGUMENT (TEST 1)                        H4040060
      COMPLEX FUNCTION AFC(AWVS)                                        H4040070
      AFC = (-1.0,0.0)+AWVS                                             H4040080
      RETURN                                                            H4040090
      END                                                               H4040100
C*************************************************************************H4140010
C*****                                                                  H4140020
C*****                          BFC - (414)                             H4140030
C*****                                                                  H4140040
C*************************************************************************H4140050
C*****COMPLEX FUNCTION OF INTEGER ARGUMENT (TEST 2)                     H4140060
      COMPLEX FUNCTION BFC(IWVI)                                        H4140070
      BFC=(1.0,1.0)**IWVI                                               H4140080
      RETURN                                                            H4140090
      END                                                               H4140100
C*************************************************************************H4240010
C*****                                                                  H4240020
C*****                          CFC - (424)                             H4240030
C*****                                                                  H4240040
C*************************************************************************H4240050
C*****COMPLEX FUNCTION OF ARRAY NAME (TEST 3)                           H4240060
      COMPLEX FUNCTION CFC(AW1S)                                        H4240070
      DIMENSION AW1S(2)                                                 H4240080
      CFC = (2.0,0.0)-AW1S(1)-AW1S(2)                                   H4240090
      RETURN                                                            H4240100
      END                                                               H4240110
C*************************************************************************H4340010
C*****                                                                  H4340020
C*****                          DFC - (434)                             H4340030
```

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C*****                                                                  H4340040
C*************************************************************************H4340050
C*****COMPLEX FUNCTION OF DOUBLE PRECISION ARGUMENT (TEST 4)             H4340060
      COMPLEX FUNCTION DFC(AWVD)                                        H4340070
      DOUBLE PRECISION AWVD                                             H4340080
      AVS  = AWVD                                                       H4340090
      DFC = (1.0,1.0) * AVS - (1.0,1.0)                                 H4340100
      RETURN                                                            H4340110
      END                                                               H4340120
C*************************************************************************H4440010
C*****                                                                  H4440020
C*****                          EFC - (444)                             H4440030
C*****                                                                  H4440040
C*************************************************************************H4440050
C*****COMPLEX FUNCTION OF COMPLEX ARGUMENT (TEST 5)                      H4440060
      COMPLEX FUNCTION EFC(AWVC)                                        H4440070
      COMPLEX AWVC                                                      H4440080
      EFC=AWVC- (1.0,1.0)                                               H4440090
      RETURN                                                            H4440100
      END                                                               H4440110
C*************************************************************************H4540010
C*****                                                                  H4540020
C*****                          FFC - (454)                             H4540030
C*****                                                                  H4540040
C*****COMPLEX FUNCTION OF LOGICAL ARGUMENT(TESTS 6,7)                    H4540050
      COMPLEX FUNCTION FFC(AWVB)                                        H4540060
      LOGICAL AWVB                                                      H4540070
      IF (AWVB) GO TO 4541                                              H4540080
4540  IF (.NOT.AWVB) GO TO 4542                                         H4540090
      RETURN                                                            H4540100
4541  FFC = (1.0,1.0)                                                   H4540110
      GO TO 4540                                                        H4540120
4542  FFC = (0.0,0.0)                                                   H4540130
      RETURN                                                            H4540140
      END                                                               H4540150
C*************************************************************************H4640010
C*****                                                                  H4640020
C*****                          HFC - (464)                             H4640030
C*****                                                                  H4640040
C*************************************************************************H4640050
C*****COMPLEX FUNCTION OF DIFFERENT TYPES OF ARGUMENTS (TESTS 8,9,10     H4640060
      COMPLEX FUNCTION  HFC(AWVS,IWVI,AWVB,AWVC,AWVD,AW1S,AW2S,AW3S,    H4640070
     1 IW1I,IW2I,IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D,AW3D,AWFC)H4640080
       DIMENSION AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI),       H4640090
     1           IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI),       H4640100
     2           AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI),       H4640110
     3           AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI),       H4640120
     4           AW1D(IWVI),AW2D(IWVI,IWVI),AW3D(IWVI,IWVI,IWVI)        H4640130
      COMMON BXVS                                                       H4640140
      LOGICAL AWVB,AW1B,AW2B,AW3B                                       H4640150
      COMPLEX AWVC,AW1C,AW2C,AW3C, AWFC                                 H4640160
      DOUBLE PRECISION AWVD,AW1D,AW2D,AW3D                              H4640170
      HFC = AWVC                                                        H4640180
      BXVS=AWVS**IWVI+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I      H4640190
     1 (IWVI,IWVI)+AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)-AWVD+     H4640200
     2 AW1D(IWVI)-AW2D(IWVI,IWVI)-AW3D(IWVI,IWVI,IWVI)                  H4640210
      AWVB = IWVI.EQ.1                                                  H4640220
      AW1B(IWVI) = IWVI.EQ.1                                            H4640230
      AW2B(IWVI,IWVI) = IWVI .EQ. 1                                     H4640240
      AW3B(IWVI,IWVI,IWVI) = IWVI.EQ.1                                  H4640250
      RETURN                                                            H4640260
C*****    END OF TEST SEGMENT 464                                       H4640270
      END                                                               H4640280
 SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.    ID 2
 OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT     ID 4
 DATE, INSTALLATION NAME
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      DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT    ID 6
C*****    PART11    ************************************************H0004800
C*****                                                              H0004805
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS              H0004810
C*****                                                              H0004815
C*****    PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3 H0004820
C*****                                                              H0004825
C*****    JUNE 1973                                                 H0004830
C*****                                                              H0004835
C*****    PART 11 OF 14 PARTS                                       H0004840
C*****                                                              H0004845
C*****    SEGMENTS INCLUDED                                         H0004850
C*****                                                              H0004855
C*****      DPFCP - 165 DOUBLE PRECISION FUNCTIONS                  H0004860
C*****                                                              H0004865
C*****        AFD - 405   REAL ARGUMENT                             H0004870
C*****                                                              H0004875
C*****        BFD - 415   INTEGER ARGUMENT                          H0004880
C*****                                                              H0004885
C*****        CFD - 425   D.P. ARGUMENT                             H0004890
C*****                                                              H0004895
C*****        DFD - 435   COMPLEX ARGUMENTS                         H0004900
C*****                                                              H0004905
C*****        EFD - 445   LOGICAL ARGUMENT                          H0004910
C*****                                                              H0004915
C*****        FFD - 455   EXTERNAL PROCEDURE                        H0004920
C*****                                                              H0004925
C*****        GFD - 465   ARRAY NAME                                H0004930
C*****                                                              H0004935
C*****        HFD - 475   DIFFERENT TYPES OF ARGUMENTS              H0004940
C*****                                                              H0004945
C*****      BFCCP - 166 LOGICAL FUNCTIONS                           H0004950
C*****                                                              H0004955
C*****        AFB - 406   REAL ARGUMENT                             H0004960
C*****                                                              H0004965
C*****        BFB - 416   INTEGER ARGUMENT                          H0004970
C*****                                                              H0004975
C*****        CFB - 426   D.P. ARGUMENT                             H0004980
C*****                                                              H0004985
C*****        DFB - 436   LOGICAL ARGUMENT                          H0004990
C*****                                                              H0004995
C*****        EFB - 446   COMPLEX ARGUMENT                          H0005000
C*****                                                              H0005005
C*****        FFB - 456   ARRAY NAME                                H0005010
C*****                                                              H0005015
C*****        GFB - 466   EXTERNAL PROCEDURE                        H0005020
C*****                                                              H0005025
C*****        HFB - 476   DIFFERENT TYPES OF ARGUMENTS              H0005030
C*****                                                              H0005035
C*****      SBRTN - 167  SUBROUTINE SUBPROGRAM                      H0005040
C*****                                                              H0005045
C*****        AAQ - 407  INTEGER AND REAL VARIABLES AND ARRAY ELEMENTS H0005050
C*****                                                              H0005055
C*****        ABQ - 417  ARRAY ELEMENTS                             H0005060
C*****                                                              H0005065
C*****        ACQ - 427  NO ARGUMENT LIST                           H0005070
C*****                                                              H0005075
C*****      FSBRT - 168 SUBROUTINE SUBPROGRAM                       H0005080
C*****                                                              H0005085
C*****        ADQ - 408   DIFFERENT TYPES OF ARGUMENTS              H0005090
C*****                                                              H0005095
C*****        AEQ - 418   ARRAY NAMES AND INTEGER ARGUMENTS         H0005100
C*****                                                              H0005105
C*****        AFQ - 428   NO ARGUMENT LIST                          H0005110
C*****                                                              H0005115
C*****      BLKDT - 169 BLOCK DATA                                  H0005120
C*****                                                              H0005125
C*****        BLOKD - 409   BLOCK DATA SUBPROGRAM                   H0005130
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C*****                                                                  H0014800
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED DNLY WHEN           H0014805
C*****  SEGMENTS 165, 166, 167, 168, 169  ARE RUN AS DNE MAIN PROGRAM.  H0014810
C*****                                                                  H0014815
      DIMENSION A1S(5), A2S(2,2), A3S(3,3,3)                            H0014820
      DIMENSIDN IAB1I(4), IAB2I(3,3), IAB3I(2,2,2), AB1S(4)             H0014825
     1  ,AB2S(3,3), AB3S(2,2,2)                                         H0014830
      INTEGER I1I(5), I2I(2,2), I3I(2,2,2)                              H0014835
      DDUBLE PRECISIDN AVD, A1D(4),A2D(2,2),A3D(2,2,2)                  H0014840
      DDUBLE PRECISION AFD,BFD,CFD,DFD,EFD,FFD,GFD,HFD                  H0014845
      DDUBLE PRECISION AXVD, AX1D, AX2D,AX3D                            H0014850
     1  ,DXVD,DX1D,DX2D,DX3D                                            H0014855
      LOGICAL A1B(2), A2B(2,2), A3B(2,2,2),AXVB, AX1B, AX2B, AX3B,AVB   H0014860
     1  ,BVB,AFB,BFB,CFB,DFB,EFB,FFB,GFB,HFB , DXVB,DX1B,DX2B,DX3B      H0014865
      CDMPLEX AVC,A1C(12),A2C(2,2), A3C(2,2,1)                          H0014870
      COMPLEX AXVC, AX1C, AX2C, AX3C,DXVC, DX1C, DX2C, DZ3C             H0014875
      COMMON AXVS,CXVS                                                  H0014880
      COMMDN       IXVI,IAX1I(4),IAX2I(3,3),IAX3I(2,2,2),BXVS,          H0014885
     -     AX1S(4),AX2S(3,3),AX3S(2,2,2),AXVD,AX1D(2),AX2D(2,2),        H0014890
     B         AX3D(2,2,2), AXVC, AX1C(2), AX2C(2,2), AX3C(2,2,2), AXVB, H0014895
     C         AX1B(2), AX2B(2,2), AX3B(2,2,2)                          H0014900
      CDMMDN /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                           H0014905
     A       /BLK2/DXVS, DX1S(2), DX2S(2,2)                             H0014910
     B       /BLK3/DXVD, DX1D(2), DX2D(2,2)                             H0014915
     C       /BLK4/DXVC, DX1C(2), DX2C(2,2)                             H0014920
     D       /BLK5/DXVB, DX1B(2), DX2B(2,2)                             H0014925
     E       /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),              H0014930
     F             DZ3C(2,2,2), DX3B(2,2,2)                             H0014935
      EXTERNAL AFB,CFD,AFD,SQRT                                         H0014940
C*****  END DF SPECIFICATIDNS FOR SEGMENTS                              H0014945
C*****  165, 166, 167, 168, 169                                         H0014950
C*****                                                                  H0014955
C*********************************************************************H1650010
C*****                                                                  H1650020
C*****                          DPFCP-(165)                             H1650030
C*****                                                                  H1650040
C*********************************************************************H1650050
C*****                        GENERAL PURPDSE                           H1650060
C*****    1.TD TEST DDUBLE PRECISIDN FUNCTIONS IN FULL FDRTRAN    8.3.1H1650070
C*****    2.DUMMY ARGUMENTS ARE REAL,INTEGER,COMPLEX,LOGICAL,           H1650080
C*****    DOUBLE PRECISIDN,EXTERNAL PROCEDURE,ARRAY NAME                H1650090
C*****    3.FUNCTIDNS CDNTAIN UP TD 20 ARGUMENTS                        H1650100
C*****    4.IN REFERENCE,ACTUAL ARGUMENTS ARE VARIABLE1NAME,            H1650110
C*****     ARRAY NAME,ARRAY ELEMENT NAME,DR ARITHMETIC EXPRESSIDN. 8.3.2H1650120
C*****RESTRICTIDNS OBSERVED                                             H1650130
C*****    1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH 8.3.1                 H1650140
C*****    2 LAST SENTENCE  OF PARAGRAPH 3.2                             H1650150
C*****     THIS SEGMENT IS TO BE RUN WITH SEGMENTS                      H1650160
C*****     405, 415, 425, 435, 445, 455, 465, 475          WHICH        H1650170
C*****    WHICH  CDNTAINS ALL FUNCTIDNS BEING TESTED HERE               H1650180
C*****                                                                  H1650190
C*****  S P E C I F I C A T I D N S  SEGMENT 165                        H1650200
C*****                                                                  H0014960
C*****  WHEN EXECUTING DNLY SEGMENT 165, REMDVE THE PRECEDING           H0014965
C*****  SPECIFICATIONS.  THE FDLLDWING SPECIFICATIDNS WHICH             H0014970
C*****  APPEAR AS CDMMENTS MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMDVED.H0014975
C*****                                                                  H0014980
C=    DIMENSIDN A1S(5),A2S(2,2),A3S(3,3,3)                              H0014985
C=    INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                H0014990
C=    LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB,BVB                        H0014995
C=    DOUBLE PRECISIDN AFD, BFD, CFD, DFD, EFD, FFD, GFD, HFD,AVD       H0015000
C=   1, A1D(4),A2D(2,2),A3D(2,2,2)                                      H0015005
C=    COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                           H0015010
C=    COMMDN AXVS,CXVS                                                  H0015015
C=     EXTERNAL  CFD,AFD                                                H0015020
C*****                                                                  H0015025
C*****  I N P U T  O U T P U T  T A P E  ASSIGNMENT STATEMENTS           H1650210
      IRVI = 5                                                          H0074800
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      NUVI = 6                                                          H0074805
C***** IDENTIFY THE SOURCE OF THE TEST PROGRAMS                          H0074810
      WRITE(NUVI,0071)                                                  H0074815
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0074820
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                  H0074825
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0074830
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0074835
     5 23H  VERSION 3     PART 11///)                                   H0074840
C***** 3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER         H0074845
C       PREPARED BY USER                                                H0074850
C       READ, NO LIST                                                   H0074855
C       PREPARED BY USER                                                H0074860
C       READ, NO LIST                                                   H0074865
C       PREPARED BY USER                                                H0074870
C       READ, NO LIST                                                   H0074875
      READ(IRVI,0070)                                                   H0074880
      READ(IRVI,0072)                                                   H0074885
      READ(IRVI,0073)                                                   H0074890
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)             H0074895
0072  FORMAT(40H   TEST PROGRAMS                         /)             H0074900
0073  FORMAT(40H   FORTRAN COMPILER                      /)             H0074905
      WRITE(NUVI,0070)                                                  H0074910
      WRITE(NUVI,0072)                                                  H0074915
      WRITE(NUVI,0073)                                                  H0074920
C*****                                                                  H0074925
      WRITE (NUVI,1650)                                                 H1650220
 1650 FORMAT(1H1,1X,30HDPFCP - (165) DOUBLE PRECISION/ 16X, 9HFUNCTIONS H1650230
     1 //2X,21HASA REFS. 8.3.1,8.3.2//2X, 7HRESULTS)                    H1650240
C***** TEST 1                                                           H1650250
      MAVI = 1                                                          H1650260
      IVI = AFD(1.0) - 1.0D0                                            H1650270
       IF (IVI)  1652,1653,1652                                         H1650280
C***** TEST 2                                                           H1650290
 1657 MAVI =2                                                           H1650300
      IVI=BFD(1)-1.0D0                                                  H1650310
      IF(IVI)1652,1653,1652                                             H1650320
C***** TEST 3                                                           H1650330
 1658 MAVI =3                                                           H1650340
       AVD=1.0D0                                                        H1650350
      IVI=CFD(AVD)-1.0D0                                                H1650360
       IF(IVI) 1652,1653,1652                                           H1650370
C***** TEST 4 .ONE ARGUMENT IS ARRAY ELEMENT NAME                       H1650380
 1659 MAVI =4                                                           H1650390
      AVC = (1.0,1.0)                                                   H1650400
      A1C(1)=(1.0,-1.0)                                                 H1650410
      IVI=DFD(AVC,A1C(1))                                               H1650420
      IF (IVI) 1652,1653,1652                                           H1650430
C***** TEST 5,6                                                         H1650440
 7014 MAVI =5                                                           H1650450
      AVB=.TRUE.                                                        H1650460
      IVI=EFD(AVB)-1.0D0                                                H1650470
      IF(IVI)1652,1653,1652                                             H1650480
 7015 MAVI = 6                                                          H1650490
      AVB=.FALSE.                                                       H1650500
      IVI=EFD(AVB)                                                      H1650510
      IF(IVI)1652,1653,1652                                             H1650520
C***** TEST 7                                                           H1650530
 7016 MAVI = 7                                                          H1650540
      IVI = FFD (1.E0,AFD) - 1.0D0                                      H1650550
      IF (IVI) 1652,1653,1652                                           H1650560
C***** TEST 8                                                           H1650570
 7017 MAVI = 8                                                          H1650580
      A1D(1)=1.0D0                                                      H1650590
      A1D(2)=-1.0D0                                                     H1650600
      IVI=GFD(A1D)                                                      H1650610
      IF (IVI) 1652,1653,1652                                           H1650620
C***** TESTS 9,10,11,12                                                 H1650630
 7018 IAVI = 1                                                          H1650640
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      AVD=1.0D0                                                          H1650650
      A1D(1)=1.0D0                                                       H1650660
      A2D(1,1)=1.0D0                                                     H1650670
      A3D(1,1,1)= 1.0D0                                                  H1650680
      AVS=1.0                                                            H1650690
      A1S(1)=1.0                                                         H1650700
      A2S(1,1)=1.0                                                       H1650710
      A3S(1,1,1)=1.0                                                     H1650720
      A1C(1)=(1.0,1.0)                                                   H1650730
      A2C(1,1)=(1.0,1.0)                                                 H1650740
      A3C(1,1,1)=(1.0,1.0)                                               H1650750
      I1I(1)=1                                                           H1650760
      I2I(1,1)=1                                                         H1650770
      I3I(1,1,1)=1                                                       H1650780
      MAVI = 9                                                           H1650790
      IVI=HFD(AVS,IAVI,AVB,AVC,AVD,A1S,A2S,A3S,I1I,I2I,I3I ,A1B,A2B,A3B,H1650800
     1A1C,A2C,A3C,A1D,A2D,A3D,CFD)                                       H1650810
      IF (IVI)   1652,1653,1652                                          H1650820
 7019 MAVI = 10                                                          H1650830
      IVI=AXVS                                                           H1650840
      IF (IVI) 1652,1653,1652                                            H1650850
 7020 MAVI = 11                                                          H1650860
      WRITE (NUVI,1656) AVC,MAVI                                         H1650870
1656  FORMAT(//2F5.1//2X,5HTEST ,I2,31H IS POSITIVE IF NUMBERS PRINTED/ H1650880
     1 2X,17HABOVE ARE 0.0,0.0)                                          H1650890
 7021 MAVI = 12                                                          H1650900
      BVB = AVB.AND.A1B(1).AND.A2B(1,1).AND.A3B(1,1,1)                   H1650910
      IF(BVB) GO TO 1653                                                 H1650920
 1652 WRITE(NUVI,1654)MAVI                                               H1650930
      GO TO 1651                                                         H1650940
 1653 WRITE(NUVI,1655)MAVI                                               H1650950
 1654 FORMAT(/2X,5HTEST ,I2,12H IS NEGATIVE)                             H1650960
 1655 FORMAT(/2X,5HTEST ,I2,12H IS POSITIVE)                             H1650970
 1651 GO TO (1657,1658,1659,7014,7015,7016,7017,7018,7019,7020,7021,     H1650980
     1 7022) ,MAVI                                                       H1650990
 7022 CONTINUE                                                           H1651000
C*****    END OF TEST SEGMENT 165                                        H1651010
C*****  WHEN EXECUTING ONLY SEGMENT 165, THE  STOP  AND  END CARDS       H1651020
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H1651030
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H1651040
C=    STOP                                                               H1651050
C=    END                                                                H1651060
C*************************************************************************H1660010
C*****                                                                   H1660020
C*****                        BFCCP-(166)                                H1660030
C*****                                                                   H1660040
C*************************************************************************H1660050
C*****                       GENERAL PURPOSE                             H1660060
C*****    1.TO TEST LOGICAL FUNCTIONS IN FULL FORTRAN                    H1660070
C*****    2.DUMMY ARGUMENTS ARE REAL,INTEGER,COMPLEX,LOGICAL,            H1660080
C*****    DOUBLE PRECISION,EXTERNAL PROCEDURE,ARRAY NAME.                H1660090
C*****    3.FUNCTIONS CONTAIN UP TO 20 ARGUMENTS                         H1660100
C*****    4.IN REFERENCE ACTUAL ARGUMENTS ARE VARIABLE NAME              H1660110
C*****    ARRAY NAME,ARRAY ELEMENT NAME,ARITHMETIC EXPRESSION            H1660120
C*****    EXTERNAL PROCEDURE                                             H1660130
C*****    6.USE CAN BE MADE OF ADJUSTABLE DIMENTION                      H1660140
C*****    7.ARGUMENTS CAN BE PASSED THROUGH COMMON                       H1660150
C*****RESTRICTIONS OBSERVED                                             H1660160
C*****    1.ITEMS(2),(3),(4),(5),(6) OF PARAGRAPH                        H1660170
C*****    2.LAST SENTENCE OF PARAGRAPH 3.2                               H1660180
C*****     THIS SEGMENT IS TO BE RUN WITH SEGMENTS                       H1660190
C*****     406, 416, 426, 436, 446, 456, 466, 476          WHICH         H1660200
C*****    CONTAINS ALL FUNCTIONS BEING TESTED HERE.                      H1660210
C*****LOGICAL FUNCTION OF REAL ARGUMENT(TEST 1)                          H1660220
C*****                                                                   H1660230
C*****  S P E C I F I C A T I O N S  SEGMENT 166                         H1660240
C*****                                                                   H0015030
C*****  WHEN EXECUTING ONLY SEGMENT 166, THE SPECIFICATION STATEMENTS    H0015035
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C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE C=                        H0015040
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0015045
C*****                                                                   H0015050
C=     DIMENSION A1S(5),A2S(2,2),A3S(3,3,3)                              H0015055
C=     INTEGER I1I(5),I2I(2,2),I3I(2,2,2)                                H0015060
C=     LOGICAL AVB,AFB,BFB,CFB,DFB,EFB,FFB,GFB,HFB                       H0015065
C=    1, A1B(2),A2B(2,2),A3B(2,2,2)                                      H0015070
C=     DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                   H0015075
C=     COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                           H0015080
C=     COMMON AXVS,CXVS                                                  H0015085
C=      EXTERNAL AFB                                                     H0015090
C*****                                                                   H0015095
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.      H1660250
C*****                                                                   H0074930
C*****  WHEN EXECUTING ONLY SEGMENT 166, THE FOLLOWING STATEMENT         H0074935
C*****  NUVI  =  6  MUST HAVE THE C= IN COLUMNS 1  AND  2  REMOVED.      H0074940
C=     NUVI = 6                                                          H0074945
       MAVI=1                                                            H1660260
       WRITE(NUVI,1662)                                                  H1660270
 1662 FORMAT(1H1,1X,31HBFCCP - (166) LOGICAL FUNCTIONS//2X,              H1660280
     1 13HASA REF 8.3.1//2X,7HRESULTS)                                   H1660290
       AVB=AFB(1.0)                                                      H1660300
       IF (AVB) GO TO 1664                                               H1660310
       WRITE(NUVI,1661) MAVI                                             H1660320
       GO TO 1665                                                        H1660330
1660   FORMAT (/7H  TEST ,I2,12H IS POSITIVE)                            H1660340
1661   FORMAT (/7H  TEST ,I2,12H IS NEGATIVE)                            H1660350
1664   WRITE(NUVI,1660) MAVI                                             H1660360
       GO TO (1665,1666,1667,1668,1669,7030,7031,7032,7033,7034), MAVI   H1660370
C***** LOGICAL FUNCTION OF INTEGER ARGUMENT (TEST 2)                     H1660380
1665   MAVI=2                                                            H1660390
       AVB=BFB(1)                                                        H1660400
       IF (AVB) GO TO 1664                                               H1660410
       WRITE(NUVI,1661) MAVI                                             H1660420
C*****LOGICAL FUNCTION OF DOUBLE PRECISION ARGUMENT(TEST 3)              H1660430
1666   MAVI=3                                                            H1660440
       AVD=1.0D0                                                         H1660450
       AVB=CFB(AVD)                                                      H1660460
       IF (AVB) GO TO 1664                                               H1660470
       WRITE(NUVI,1661) MAVI                                             H1660480
C***** LOGICAL FUNCTION OF LOGICAL ARGUMENT(TEST 4)                      H1660490
1667   MAVI=4                                                            H1660500
       AVB=DFB(.TRUE.)                                                   H1660510
       IF (AVB) GO TO 1664                                               H1660520
       WRITE(NUVI,1661) MAVI                                             H1660530
C*****LOGICAL FUNCTION OF COMPLEX ARGUMENT(TEST 5)                       H1660540
1668   MAVI=5                                                            H1660550
       AVB=EFB((1.0,1.0))                                                H1660560
       IF (AVB) GO TO 1664                                               H1660570
       WRITE(NUVI,1661) MAVI                                             H1660580
C***** LOGICAL FUNCTION OF ARRAY NAME (TEST 6)                           H1660590
1669    MAVI=6                                                           H1660600
        A1S(1)=1.0                                                      H1660610
        A1S(2)=0.0                                                      H1660620
        AVB=FFB(A1S)                                                    H1660630
       IF (AVB) GO TO 1664                                               H1660640
       WRITE(NUVI,1661) MAVI                                             H1660650
C***** LOGICAL FUNCTION OF EXTERNAL PROCEDURE(TEST 7)                    H1660660
7030    MAVI=7                                                           H1660670
       AVB= GFB(AFB,1.0)                                                 H1660680
       IF (AVB) GO TO 1664                                               H1660690
       WRITE(NUVI,1661) MAVI                                             H1660700
C*****LOGICAL FUNCTION OF DIFFERENT TYPES OF ARGUMENTS                   H1660710
7031   MAVI=8                                                            H1660720
       AVD = 1.0D0                                                       H1660730
       AVC = (1.0,1.0)                                                   H1660740
       IAVI = 1                                                          H1660750
       AVB=.TRUE.                                                        H1660760
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      A1B(1)=.TRUE.                                                     H1660770
      A2B(1,1)=.TRUE.                                                   H1660780
      A3B(1,1,1)=.TRUE.                                                 H1660790
      A1C(1)=(1.0,1.0)                                                  H1660800
      A2C(1,1)=(1.0,1.0)                                                H1660810
      A3C(1,1,1)=(-2.0,-2.0)                                            H1660820
      A1D(1)=1.0D0                                                      H1660830
      A2D(1,1)=1.0D0                                                    H1660840
      A3D(1,1,1)=-2.0D0                                                 H1660850
      I1I(1)=1                                                          H1660860
      I2I(1,1)=1                                                        H1660870
      I3I(1,1,1)=1                                                      H1660880
      A1S(1)=1.0                                                        H1660890
      A2S(1,1)=1.0                                                      H1660900
      A3S(1,1,1)=1.0                                                    H1660910
      AXVS=1.0                                                          H1660920
      AVB= HFB(AVS,IAVI,AVB,AVD,AVC,A1S,A2S,A3S,I1I,I2I,I3I,A1B,A2B,    H1660930
     1A3B,A1C,A2C,A3C,A1D,A2D,A3D,AFB)                                  H1660940
      IF (AVB) GO TO 1664                                               H1660950
      WRITE(NUVI,1661) MAVI                                             H1660960
7032  MAVI = 9                                                          H1660970
      IAVI=AVD                                                          H1660980
      IF(IAVI.EQ.0) GO TO 1664                                          H1660990
      WRITE(NUVI,1661) MAVI                                             H1661000
7033  IAVI=1                                                            H1661010
      MAVI=10                                                           H1661020
      IAVI=AVS                                                          H1661030
      IF(IAVI.EQ.0) GO TO 1664                                          H1661040
      WRITE(NUVI,1661) MAVI                                             H1661050
7034  MAVI=11                                                           H1661060
      WRITE(NUVI,1663) AVC,MAVI                                         H1661070
1663  FORMAT (//2F8.4//7H  TEST ,I2,31H IS POSITIVE IF NUMBERS PRINTED/ H1661080
     119H  ABOVE ARE 0.0,0.0//2X,12HEND OF (166))                       H1661090
C*****    END OF TEST SEGMENT 166                                       H1661100
C*****  WHEN EXECUTING ONLY SEGMENT 166, THE STOP AND END CARDS         H1661110
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN               H1661120
C***** COLUMNS  1  AND  2  REMOVED.                                      H1661130
C=    STOP                                                              H1661140
C=    END                                                               H1661150
C*************************************************************************H1670010
C*****                                                                   H1670020
C*****                          SBRTN - (167)                            H1670030
C*****                                                                   H1670040
C*************************************************************************H1670050
C*****  GENERAL PURPOSE                                        ASA REFSH1670060
C*****    TO TEST SUBROUTINE SUBPROGRAMS                        8.4.1  H1670070
C*****  RESTRICTIONS OBSERVED                                           H1670080
C*****    SYMBOLIC NAME OF A SUBROUTINE MAY NOT APPEAR IN ANY 8.4.1.//19H1670090
C*****    STATEMENT IN THIS SUBROUTINE EXCEPT IN THE                    H1670100
C*****    SUBROUTINE STATEMENT ITSELF                                   H1670110
C*****  * SYMBOLIC NAMES OF DUMMY ARGUMENTS MAY NOT APPEAR    8.4.1.1/23H1670120
C*****    IN EQUIVALENCE OR COMMON STATEMENTS IN THE SUBPROGRAM         H1670130
C*****  * SUBROUTINES MAY NOT CONTAIN A FUNCTION STATEMENT,   8.4.1.//29H1670140
C*****    ANOTHER SUBROUTINE STATEMENT, OR ANY STATEMENT THAT           H1670150
C*****    DIRECTLY OR INDIRECTLY REFERENCES THE SUBROUTINE              H1670160
C*****    BEING DEFINED.                                                H1670170
C*****  * AT LEAST ONE RETURN STATEMENT MUST BE IN A SUBROUTINE         H1670180
C*****                                                  8.4.1.1/33H1670190
C*****  GENERAL COMMENTS                                                H1670200
C*****    THIS SEGMENT IS TO BE RUN WITH SEGMENT 407, 417, 427          H1670210
C*****                                                                  H1670220
C*****  S P E C I F I C A T I O N S  SEGMENT 167                        H1670230
C*****                                                                  H0015100
C*****  WHEN EXECUTING ONLY SEGMENT 167, THE SPECIFICATION STATEMENTS   H0015105
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                  H0015110
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0015115
C*****                                                                  H0015120
C=    DIMENSION IAB1I(4), IAB2I(3,3), AB1S(4), AB2S(3,3)                H0015125
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C=    COMMON AXVS, CXVS, IXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2),      H0015130
C=   1       BXVS, AX1S(4), AX2S(3,3)                                    H0015135
C=    EXTERNAL SQRT                                                      H0015140
C*****                                                                   H0015145
C*****  O U T P U T   T A P E   ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1670240
C*****                                                                   H0074950
C*****  WHEN EXECUTING ONLY SEGMENT 167, THE FOLLOWING STATEMENT         H0074955
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           H0074960
C=    NUVI = 6                                                           H0074965
C*****                                                                   H0074970
C*****    WRITE HEADING                                                  H1670250
      WRITE (NUVI,1670)                                                  H1670260
1670  FORMAT(1H1,1X,35HSBRTN - (167) SUBROUTINE SUBPROGRAM/              H1670270
     1 /2X,16HASA REF. - 8.4.1//2X,7HRESULTS)                            H1670280
C*****    SET ALL VARIABLES AND SOME ELEMENTS IN ARRAYS TO ZERO          H1670290
      IAVI = 4                                                           H1670300
      AVS = 0.0                                                          H1670310
      IAB1I(1) = 0                                                       H1670320
      IAB1I(3) = 0                                                       H1670330
      IAB2I(1,2) = 0                                                     H1670340
      IAB2I(3,3) = 0                                                     H1670350
C*****                                                                   H1670360
      AB1S(1) = 0.0                                                      H1670370
      AB1S(4) = 0.0                                                      H1670380
      AB2S(1,3) = 0.0                                                    H1670390
      AB2S(2,3) = 0.0                                                    H1670400
C*****                                                                   H1670410
      IXVI = 0                                                           H1670420
      BXVS = 0.0                                                         H1670430
      IAX1I(2) = 0                                                       H1670440
      IAX2I(1,2) = 0                                                     H1670450
C*****                                                                   H1670460
      AX1S(2) = 0.0                                                      H1670470
      AX2S(1,2) = 0.0                                                    H1670480
C*****                                                                   H1670490
C*****    SET ELEMENTS IN INTEGER AND REAL ARRAY TO 1 TO TEST            H1670500
C*****    EXPRESSIONS IN SUBROUTINE ARGUMENT                             H1670510
      IAB1I(2) = 1                                                       H1670520
      IAB1I(4) = 1                                                       H1670530
      IAB2I(2,1) = 1                                                     H1670540
      IAB2I(2,2) = 1                                                     H1670550
C*****                                                                   H1670560
      AB1S(2) = 1.0                                                      H1670570
      AB1S(3) = 1.0                                                      H1670580
      AB2S(1,2) = 1.0                                                    H1670590
      AB2S(2,2) = 1.0                                                    H1670600
C*****                                                                   H1670610
      CALL  AAQ(IAVI, AVS, IAB1I, IAB2I, AB1S, AB2S, SQRT,               H1670620
     1IAB1I(2)+IAB1I(4)*IAB2I(2,1)-IAB2I(2,2),                           H1670630
     2AB1S(2)+AB1S(3)*AB2S(1,2)-AB2S(2,2),1.0)                           H1670640
      CALL ACQ                                                           H1670650
C*****    WRITE RESULTS                                                  H1670660
      WRITE (NUVI,1671) IAVI, AVS, IAB1I(1), IAB1I(3), IAB2I(1,2),       H1670670
     A                  IAB2I(3,3), AB1S(1), AB1S(4),                   H1670680
     B                  AB2S(1,3), AB2S(2,3), IXVI, BXVS,               H1670690
     C                  IAX1I(2), IAX2I(1,2), AX1S(2),                  H1670700
     D                  AX2S(1,2)                                       H1670710
1671  FORMAT  (//I10/F11.1/4(I10/),4(F11.1/),I10/F11.1/2(I10/),2(F11.1/ H1670720
     A))                                                                 H1670730
      WRITE (NUVI,1672)                                                  H1670740
1672  FORMAT (//2X,38HTEST SUCCESSFUL IF ALL RESULTS EQUAL 1//)          H1670750
C*****    END OF TEST SEGMENT 167                                        H1670760
C*****  WHEN EXECUTING ONLY SEGMENT 167, THE STOP AND END CARDS          H1670770
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=                  H1670780
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H1670790
C=    STOP                                                               H1670800
C=    END                                                                H1670810
C*******************************************************************    H1680010
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C*****                                                                  H1680020
C*****                          FSBRT - (168)                           H1680030
C*****                                                                  H1680040
C*************************************************************************H1680050
C*****  GENERAL PURPOSE                                          ASA REFSH1680060
C*****    TO TEST SUBROUTINE SUBPROGRAM IN FORTRAN                8.4.1 H1680070
C*****  RESTRICTIONS OBSERVED                                           H1680080
C*****    SYMBOLIC NAME OF A SUBROUTINE MAY NOT APPEAR IN ANY 8.4.1.1/56H1680090
C*****    STATEMENT IN THIS SUBROUTINE EXCEPT IN THE                    H1680100
C*****    SUBROUTINE STATEMENT ITSELF.                                  H1680110
C*****  * SYMBOLIC NAME OF DUMMY ARGUMENTS MAY NOT APPEAR      8.4.1.1/39H1680120
C*****    IN EQUIVALENCE OR COMMON STATEMENTS IN THE SUBPROGRAM         H1680130
C*****  * SUBROUTINES MAY NOT CONTAIN A FUNCTION STATEMENT,    8.4.1.1/45H1680140
C*****    ANOTHER SUBROUTINE STATEMENT, OR ANY STATEMENT THAT           H1680150
C*****    DIRECTLY OR INDIRECTLY REFERENCES THE SUBROUTINE              H1680160
C*****    BEING DEFINED.                                                H1680170
C*****  * AT LEAST ONE RETURN STATEMENT MUST BE IN A SUBROUTINE         H1680180
C*****                                                       8.4.1.1/49H1680190
C*****  GENERAL COMMENTS                                                H1680200
C*****    THIS SEGMENT IS TO BE RUN WITH SEGMENT 408 , 418, 428         H1680210
C*****                                                                  H1680220
C*****  S P E C I F I C A T I O N S  SEGMENT 168                        H1680230
C*****                                                                  H0015150
C*****  WHEN EXECUTING ONLY SEGMENT 168, THE SPECIFICATION STATEMENTS   H0015155
C*****  WHICH APPEAR AS COMMENTS MUST HAVE THE C=                       H0015160
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0015165
C*****                                                                  H0015170
C=     DIMENSION IAB1I(4), IAB2I(3,3), IAB3I(2,2,2), AB1S(4), AB2S(3,3), H0015175
C=    A          AB3S(2,2,2)                                           H0015180
C=     COMMON AXVS, CXVS, IXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2),    H0015185
C=    A       BXVS, AX1S(4), AX2S(3,3), AX3S(2,2,2), AXVD, AX1D(2),     H0015190
C=    B       AX2D(2,2), AX3D(2,2,2), AXVC, AX1C(2), AX2C(2,2),         H0015195
C=    C       AX3C(2,2,2), AXVB, AX1B(2), AX2B(2,2), AX3B(2,2,2)        H0015200
C=     DOUBLE PRECISION AXVD, AX1D, AX2D, AX3D                         H0015205
C=     DOUBLE PRECISION AVD,A1D(4),A2D(2,2),A3D(2,2,2)                 H0015210
C=     COMPLEX AXVC, AX1C, AX2C, AX3C                                  H0015215
C=     COMPLEX AVC,A1C(12),A2C(2,2),A3C(2,2,1)                         H0015220
C=     LOGICAL AXVB, AX1B, AX2B, AX3B                                  H0015225
C=     LOGICAL A1B(2),A2B(2,2),A3B(2,2,2),AVB                          H0015230
C*****                                                                  H0015235
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H1680240
C*****                                                                  H0074975
C*****  WHEN EXECUTING ONLY SEGMENT 168, THE FOLLOWING STATEMENT        H0074980
C*****  NUVI  =  6  MUST HAVE THE C= IN COLUMNS 1  AND  2  REMOVED.     H0074985
C=     NUVI = 6                                                        H0074990
C*****    SET INTEGER VARIABLES AND SOME ELEMENTS IN ARRAYS TO ZERO     H1680250
C*****    WRITE HEADING                                                 H1680260
      WRITE (NUVI,1680)                                                 H1680270
1680  FORMAT (1H1,1X,36HFSBRT - (168) SUBROUTINE SUBPROGRAMS/           H1680280
     A/18H  ASA REF. - 8.4.1//2X,7HRESULTS)                             H1680290
      IAVI = 0                                                          H1680300
      IAB1I(1) = 0                                                      H1680310
      IAB2I(1,2) = 0                                                    H1680320
      IAB3I(1,1,2) = 0                                                  H1680330
      IXVI = 0                                                          H1680340
      IAX1I(1) = 0                                                      H1680350
      IAX2I(1,2) = 0                                                    H1680360
      IAX3I(1,1,2) = 0                                                  H1680370
C*****    SET REAL VARIABLES AND SOME ELEMENTS IN ARRAYS TO ONE         H1680380
      AVS = 1.                                                          H1680390
      AB1S(1) = 1.                                                      H1680400
      AB2S(1,2) = 1.                                                    H1680410
      AB3S(1,1,2) = 1.                                                  H1680420
      BXVS = 1.                                                         H1680430
      AX1S(2) = 1.                                                      H1680440
      AX2S(1,2) = 1.                                                    H1680450
      AX3S(1,1,2) = 1.                                                  H1680460
C*****    SET DP VARIABLES AND SOME ELEMENTS IN ARRAY TO TWO             H1680470
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      AVD = 2.0D0                                                       H1680480
      A1D(1) = 2.0D0                                                    H1680490
      A2D(1,2) = 2.0D0                                                  H1680500
      A3D(1,1,2) = 2.0D0                                                H1680510
      AXVD = 2.0D0                                                      H1680520
      AX1D(1) = 2.0D0                                                   H1680530
      AX2D(1,2) = 2.D0                                                  H1680540
      AX3D(1,1,2) = 2.0D0                                               H1680550
C*****    SET COMPLEX VARIABLES AND SOME ELEMENTS IN ARRAYS TO (3.0,3.0)H1680560
      AVC = (3.0,3.0)                                                   H1680570
      A1C(1) = (3.0,3.0)                                                H1680580
      A2C(1,2) = (3.0,3.0)                                              H1680590
      A3C(1,2,1) = (3.0,3.0)                                            H1680600
      AXVC = (3.0,3.0)                                                  H1680610
      AX1C(1) = (3.0,3.0)                                               H1680620
      AX2C(1,2) = (3.0,3.0)                                             H1680630
      AX3C(1,1,2) = (3.0,3.0)                                           H1680640
C*****    SET LOGICAL VARIABLES AND SOME ELEMENTS IN ARRAYS TO .FALSE.  H1680650
      AVB = .FALSE.                                                     H1680660
      A1B(1) = .FALSE.                                                  H1680670
      A2B(1,2) = .FALSE.                                                H1680680
      A3B(1,1,2) = .FALSE.                                              H1680690
      AXVB = .FALSE.                                                    H1680700
      AX1B(1) = .FALSE.                                                 H1680710
      AX2B(1,2) = .FALSE.                                               H1680720
      AX3B(1,1,2) = .FALSE.                                             H1680730
C*****    SET INTEGER AND REAL VARIABLES FOR EXPRESSION USAGE IN        H1680740
C*****    DUMMY ARGUMENT                                                H1680750
      IAB1I(4) = 0                                                      H1680760
      IAB1I(2) = 0                                                      H1680770
      AB1S(4) = 0.0                                                     H1680780
      AB1S(2) = 0.0                                                     H1680790
      JAVI = 1                                                          H1680800
      KAVI = 1                                                          H1680810
      LAVI = 1                                                          H1680820
      MAVI = 1                                                          H1680830
      NAVI = 1                                                          H1680840
      ABVS = 1.                                                         H1680850
      ACVS = 1.                                                         H1680860
      ADVS = 2.                                                         H1680870
      AEVS = 2.                                                         H1680880
      AFVS = 2.                                                         H1680890
      CALL ADQ(IAVI,IAB1I, IAB2I, IAB3I, AVS, AB1S, AB2S, AB3S, AVD,    H1680900
     A          A1D, A2D, A3D, AVC, A1C, A2C, A3C, AVB, A1B, A2B, A3B,  H1680910
     B          JAVI+KAVI*LAVI-MAVI/NAVI,1,ABVS+ACVS*ADVS-AEVS/AFVS,2.) H1680920
      WRITE (NUVI,1681)                                                 H1680930
      CALL AFQ                                                          H1680940
1681  FORMAT ( /28H  TEST IS SUCCESSFUL IF EACH/                        H1680950
     A28H  GROUP CONTAINS SAME VALUES)                                  H1680960
      WRITE (NUVI,1682) IAVI, IAB1I(1), IAB1I(2), IAB1I(4), IAB2I(1,2), H1680970
     A                  IAB3I(1,1,2), IXVI, IAX1I(1), IAX2I(1,2),      H1680980
     B                  IAX3I(1,1,2), AVS, AB1S(1), AB2S(1,2), AB3S(1,1,H1680990
     C2),AB1S(2),AB1S(4),   BXVS, AX1S(2), AX2S(1,2), AX3S(1,1,2), AVD, H1681000
     D                  A1D(1), A2D(1,2), A3D(1,1,2), AXVD, AX1D(1),   H1681010
     E                  AX2D(1,2), AX3D(1,1,2), AVC, A1C(1), A2C(1,2), H1681020
     F                  A3C(1,2,1), AXVC, AX1C(1), AX2C(1,2),          H1681030
     G                  AX3C(1,1,2), AVB, A1B(1), A2B(1,2), A3B(1,1,2), H1681040
     H                  AXVB, AX1B(1), AX2B(1,2), AX3B(1,1,2)          H1681050
1682  FORMAT (  10(I10/)/                                               H1681060
     1            10(F11.1/)/                                          H1681070
     2             8(1PD15.1/)/                                        H1681080
     3             8(0PF5.1,F5.1/)/                                    H1681090
     4             8(L10/) )                                           H1681100
C*****    END OF TEST SEGMENT 168                                       H1681110
C*****  WHEN EXECUTING ONLY SEGMENT 168, THE STOP AND END CARDS         H1681120
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C= IN               H1681130
C***** COLUMNS  1  AND  2  REMOVED.                                     H1681140
C=    STOP                                                            H1681150
```

```
C=     END                                                              H1681160
C***********************************************************************H1690010
C*****                                                                  H1690020
C*****                          BLKDT - (169)                           H1690030
C*****                                                                  H1690040
C***********************************************************************H1690050
C*****  GENERAL PURPOSE                                         ASA REFSH1690060
C*****    TD TEST BLOCK DATA SUBPRDGRAM                           8.5   H1690070
C*****  GENERAL CDMMENTS                                                H1690080
C*****    THIS SEGMENT IS TO BE RUN WITH SEGMENT 409.  THIS             H1690090
C*****    SEGMENT WRITES OUT THE DATA FORMED IN SEGMENT 409.            H1690100
C*****                                                                  H1690110
C*****  S P E C I F I C A T I O N S  SEGMENT 169                        H1690120
C*****                                                                  H0015240
C*****  WHEN EXECUTING ONLY SEGMENT 169, THE SPECIFICATION STATEMENTS    H0015245
C*****  WHICH APPEAR AS CDMMENTS MUST HAVE THE C=                        H0015250
C*****  IN CDLUMNS  1  AND  2  REMDVED.                                 H0015255
C*****                                                                  H0015260
C=     CDMMDN /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                          H0015265
C=    A       /BLK2/DXVS, DX1S(2), DX2S(2,2)                            H0015270
C=    B       /BLK3/DXVD, DX1D(2), DX2D(2,2)                            H0015275
C=    C       /BLK4/DXVC, DX1C(2), DX2C(2,2)                            H0015280
C=    D       /BLK5/DXVB, DX1B(2), DX2B(2,2)                            H0015285
C=    E       /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),             H0015290
C=    F                DZ3C(2,2,2), DX3B(2,2,2)                         H0015295
C=     DDUBLE PRECISIDN DXVD, DX1D, DX2D, DX3D                          H0015300
C=     CDMPLEX          DXVC, DX1C, DX2C, DZ3C                          H0015305
C=     LDGICAL          DXVB, DX1B, DX2B, DX3B                          H0015310
C*****                                                                  H0015315
C*****  D U T P U T  T A P E  ASSIGNMENT STATEMENT.  ND INPUT TAPE.      H1690130
C*****                                                                  H0074995
C*****  WHEN EXECUTING DNLY SEGMENT 169, THE FDLLDWING STATEMENT         H0075000
C*****  NUVI  =  6  MUST HAVE THE C= IN CDLUMNS 1  AND  2  REMDVED.      H0075005
C=     NUVI = 6                                                         H0075010
C*****    WRITE HEADING FDR SEGMENT 169                                 H1690140
       WRITE (NUVI,1690)                                                H1690150
1690   FDRMAT (1H1,1X,35HBLKDT - (169) BLDCK DATA SUBPROGRAM//          H1690160
      A16H  ASA REF. - 8.5//2X,7HRESULTS)                               H1690170
       WRITE (NUVI,1691)                                                H1690180
1691   FDRMAT ( /28H  TEST IS SUCCESSFUL IF EACH/                       H1690190
      A28H  GROUP CDNTAINS SAME VALUES)                                 H1690200
       WRITE (NUVI,1692) JAX2I(1,1), JAX1I(2), JAX2I(2,1), JAX3I(2,2,1) H1690210
      A     ,DX3S(1,2,1), DX1S(1), DX2S(1,1), DX3S(2,2,1), DX2D(2,2)    H1690220
      B     ,DX1D(2), DX2D(2,1), DX3D(2,2,1), DX2C(2,2), DX1C(2)        H1690230
      C     ,DX2C(2,1), DZ3C(2,1,1), DX2B(2,2),  DX1B(2), DX2B(2,1)     H1690240
      D     ,DX3B(2,2,1), JAX2I(3,1),                                   H1690250
      E     DX3B(2,1,2), DX2S(2,2)                                      H1690260
1692   FDRMAT (// 4(I10/)//                                             H1690270
      A               4(F12.1/)//                                       H1690280
      B               4(1PD16.1/)//                                     H1690290
      C               4(0PF6.1,F6.1/)//                                 H1690300
      D               4(L10/)//                                         H1690310
      F               3(2H  ,A2/))                                      H1690320
C*****    END DF TEST SEGMENT 169                                       H1690330
C*****  WHEN EXECUTING DNLY SEGMENT 169, THE STOP AND END CARDS         H1690340
C*****  WHICH APPEAR AS CDMMENT CARDS MUST HAVE THE C= IN               H1690350
C***** CDLUMNS  1  AND  2  REMDVED.                                     H1690360
C=     STOP                                                             H1690370
C=     END                                                              H1690380
       STOP                                                             H9999995
       END                                                              H9999999
C***********************************************************************H4050010
C*****                                                                  H4050020
C*****                          AFD - (405)                             H4050030
C*****                                                                  H4050040
C***********************************************************************H4050050
C*****DOUBLE PRECISION FUNCTION DF REAL ARGUMENT (TEST 1)                H4050060
      DOUBLE PRECISIDN FUNCTIDN  AFD(AWVS)                              H4050070
```

```
      AFD=AWVS                                                          H4050080
      RETURN                                                            H4050090
      END                                                               H4050100
C*****************************************************************************H4150010
C*****                                                                   H4150020
C*****                          BFD -(415)                               H4150030
C*****                                                                   H4150040
C*****************************************************************************H4150050
C*****DOUBLE PRECISION FUNCTION OF INTEGER ARGUMENT(TEST2)               H4150060
      DOUBLE PRECISION FUNCTION BFD(IWVI)                               H4150070
      BFD=1.0D0**IWVI                                                   H4150080
      RETURN                                                            H4150090
      END                                                               H4150100
C*****************************************************************************H4250010
C*****                                                                   H4250020
C*****                          CFD - (425)                              H4250030
C*****                                                                   H4250040
C*****************************************************************************H4250050
C*****DOUBLE PRECISION FUNCTION OF DOUBLE PRECISION ARGUMENT(TEST 3)     H4250060
      DOUBLE PRECISION FUNCTION CFD(AWVD)                               H4250070
      DOUBLE PRECISION AWVD                                             H4250080
      CFD=AWVD                                                          H4250090
      RETURN                                                            H4250100
      END                                                               H4250110
C*****************************************************************************H4350010
C*****                                                                   H4350020
C*****                          DFD -(435)                               H4350030
C*****                                                                   H4350040
C*****************************************************************************H4350050
C*****DOUBLE PRECISION FUNCTION OF COMPLEX ARGUMENT(TEST 4)              H4350060
      DOUBLE PRECISION FUNCTION DFD(AWVC,BWVC)                          H4350070
      COMPLEX AWVC,BWVC,CVC                                             H4350080
      CVC =BWVC*AWVC                                                    H4350090
      DFD=AIMAG(CVC)                                                    H4350100
      RETURN                                                            H4350110
      END                                                               H4350120
C*****************************************************************************H4450010
C*****                                                                   H4450020
C*****                          EFD - (445)                              H4450030
C*****                                                                   H4450040
C*****************************************************************************H4450050
C*****DOUBLE PRECISION FUNCTION OF LOGICAL ARGUMENT(TEST 5,6)            H4450060
      DOUBLE PRECISION FUNCTION EFD(AWVB)                               H4450070
      LOGICAL AWVB                                                      H4450080
      IF(AWVB) GO TO 4451                                               H4450090
4450  IF(.NOT.AWVB) GO TO 4452                                          H4450100
      RETURN                                                            H4450110
4451  EFD = 1.0D0                                                       H4450120
      GO TO 4450                                                        H4450130
4452  EFD = 0.0D0                                                       H4450140
      RETURN                                                            H4450150
      END                                                               H4450160
C*****************************************************************************H4550010
C*****                                                                   H4550020
C*****                          FFD - (455)                              H4550030
C*****                                                                   H4550040
C*****************************************************************************H4550050
C*****DOUBLE PRECISION FUNCTION OF EXTERNAL PROCEDURE (TEST 7)           H4550060
      DOUBLE PRECISION FUNCTION FFD(BWVS,BWFD)                          H4550070
      DOUBLE PRECISION      BWFD                                        H4550080
      FFD = BWFD (BWVS)                                                 H4550090
      RETURN                                                            H4550100
      END                                                               H4550110
C*****************************************************************************H4650010
C*****                                                                   H4650020
C*****                          GFD - (465)                              H4650030
C*****                                                                   H4650040
C*****************************************************************************H4650050
```

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C*****DOUBLE PRECISION FUNCTION OF  ARRAY NAME (TEST 8)                  H4650060
      OOUBLE PRECISION FUNCTION GFD(AW1D)                               H4650070
      DIMENSION AW1D(2)                                                 H4650080
      DOUBLE PRECISION AW1D                                             H4650090
      GFD= AW1D(1)+AW1D(2)                                              H4650100
      RETURN                                                            H4650110
      ENO                                                               H4650120
C*****                                                                  H4750010
C*****                                                                  H4750020
C*****                          HFD - (475)                             H4750030
C*****                                                                  H4750040
C***********************************************************************H4750050
C*****DOUBLE PRECISION FUNCTION OF DIFFERENT TYPES OF ARGUMENTS.USE CAN H4750060
C*****BE MAOE OF AOJUSTABLE OIMENSION.SOME ARGUMENTS CAN BE PASSED       H4750070
C*****THROUGH A COMMON STATEMENT.                                       H4750080
      OOUBLE PRECISION FUNCTION HFO(AWVS,IWVI,AWVB,AWVC,AWVO,AW1S,AW2S, H4750090
     1 AW3S,IW1I,IW2I,IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2O,      H4750100
     2 AW3D,CWFO)                                                       H4750110
       OIMENSION  AW1S(IWVI),AW2S(IWVI,IWVI),AW3S(IWVI,IWVI,IWVI),      H4750120
     1            IW1I(IWVI),IW2I(IWVI,IWVI),IW3I(IWVI,IWVI,IWVI),     H4750130
     2            AW1C(IWVI),AW2C(IWVI,IWVI),AW3C(IWVI,IWVI,IWVI),     H4750140
     3            AW1D(IWVI),AW2D(IWVI,IWVI),AW3D(IWVI,IWVI,IWVI),     H4750150
     4            AW1B(IWVI),AW2B(IWVI,IWVI),AW3B(IWVI,IWVI,IWVI)      H4750160
      DOUBLE PRECISION  AWVO,AW1O,AW2D,AW3O, CWFO                       H4750170
      COMPLEX AWVC,AW1C,AW2C,AW3C                                       H4750180
      REAL AW1S, AW2S, AW3S                                             H4750190
      LOGICAL  AWVB,AW1B,AW2B,AW3B                                      H4750200
      COMMON BXVS                                                       H4750210
      HFO = AWVO - AW1D(IWVI)+AW2D(IWVI,IWVI)-AW3D(IWVI,IWVI,IWVI)      H4750220
     1 + CWFD(AWVD) - 1.0D0                                             H4750230
      AWVC=AW1C(IWVI)+AW2C(IWVI,IWVI)-AW3C(IWVI,IWVI,IWVI)-(1.0,1.0)    H4750240
      BXVS=AWVS**IWVI-AW1S(IWVI)**IW1I(IWVI)+AW2S(IWVI,IWVI)**IW2I      H4750250
     1  (IWVI,IWVI)-AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)          H4750260
       AWVB=IWVI.EQ.1                                                   H4750270
      AW1B(IWVI)=IWVI.EQ.1                                              H4750280
      AW2B(IWVI,IWVI)=IWVI.EQ.1                                         H4750290
      AW3B(IWVI,IWVI,IWVI)=IWVI.EQ.1                                    H4750300
      RETURN                                                            H4750310
      END                                                               H4750320
C***********************************************************************H4060010
C*****                                                                  H4060020
C*****                          AFB - (406)                             H4060030
C*****                                                                  H4060040
C***********************************************************************H4060050
C*****LOGICAL FUNCTION OF REAL ARGUMENT (TEST 1)                         H4060060
      LOGICAL FUNCTION AFB(AWVS)                                        H4060070
      AFB= AWVS.GT.0.0                                                  H4060080
      RETURN                                                            H4060090
      END                                                               H4060100
C***********************************************************************H4160010
C*****                                                                  H4160020
C*****                          BFB - (416)                             H4160030
C*****                                                                  H4160040
C***********************************************************************H4160050
C*****LOGICAL FUNCTION OF INTEGER ARGUMENT (TEST 2)                      H4160060
      LOGICAL FUNCTION BFB(IWVI)                                        H4160070
      BFB= IWVI.GT.0                                                    H4160080
      RETURN                                                            H4160090
      ENO                                                               H4160100
C***********************************************************************H4260010
C*****                                                                  H4260020
C*****                          CFB - (426)                             H4260030
C*****                                                                  H4260040
C***********************************************************************H4260050
C*****LOGICAL FUNCTION OF DOUBLE PRECISION ARGUMENT(TEST 3)              H4260060
      LOGICAL FUNCTION CFB(AWVO)                                        H4260070
      DOUBLE PRECISION AWVO                                             H4260080
      CFB= AWVD.GT.0.0D0                                                H4260090
```

```
      RETURN                                                            H4260100
      END                                                               H4260110
C*************************************************************************H4360010
C*****                                                                  H4360020
C*****                          DFB - (436)                             H4360030
C*****                                                                  H4360040
C*************************************************************************H4360050
C*****LOGICAL FUNCTION OF LOGICAL ARGUMENT (TEST 4)                     H4360060
      LOGICAL FUNCTION DFB(AWVB)                                        H4360070
      LOGICAL AWVB                                                      H4360080
      DFB=AWVB                                                          H4360090
      RETURN                                                            H4360100
      END                                                               H4360110
C*************************************************************************H4460010
C*****                                                                  H4460020
C*****                          EFB - (446)                             H4460030
C*****                                                                  H4460040
C*************************************************************************H4460050
C*****LOGICAL FUNCTION OF COMPLEX ARGUMENT (TEST 5)                     H4460060
      LOGICAL FUNCTION EFB(AWVC)                                        H4460070
      COMPLEX AWVC                                                      H4460080
      AVS =AIMAG(AWVC)                                                  H4460090
      EFB = AVS .GT.0.0                                                 H4460100
      RETURN                                                            H4460110
      END                                                               H4460120
C*************************************************************************H4560010
C*****                                                                  H4560020
C*****                          FFB - (456)                             H4560030
C*****                                                                  H4560040
C*************************************************************************H4560050
C*****LOGICAL FUNCTION OF ARRAY NAME (TEST 6)                           H4560060
      LOGICAL FUNCTION FFB(AW1S)                                        H4560070
      DIMENSION AW1S(2)                                                 H4560080
      BVS =AW1S(1)+AW1S(2)                                              H4560090
      FFB= BVS .GT.0.0                                                  H4560100
      RETURN                                                            H4560110
      END                                                               H4560120
C*************************************************************************H4660010
C*****                                                                  H4660020
C*****                          GFB - (466)                             H4660030
C*****                                                                  H4660040
C*************************************************************************H4660050
C*****LOGICAL FUNCTION OF EXTERNAL PROCEDURE (TEST 7)                   H4660060
      LOGICAL FUNCTION  GFB(AWFB,AWVS)                                  H4660070
      LOGICAL AWFB                                                      H4660080
      GFB= AWFB(AWVS)                                                   H4660090
      RETURN                                                            H4660100
      END                                                               H4660110
C*************************************************************************H4760010
C*****                                                                  H4760020
C*****                          HFB - (476)                             H4760030
C*****                                                                  H4760040
C*************************************************************************H4760050
C*****LOGICAL FUNCTION OF DIFFERENT TYPES OF ARGUMENTS(TEST 8,9,10,11)  H4760060
      LOGICAL FUNCTION HFB(AWVS,IWVI,AWVB,AWVD,AWVC,AW1S,AW2S,AW3S,     H4760070
     1IW1I,IW2I,IW3I,AW1B,AW2B,AW3B,AW1C,AW2C,AW3C,AW1D,AW2D,AW3D,AWFB) H4760080
      COMMON BXVS                                                       H4760090
      COMPLEX AWVC,AW1C,AW2C,AW3C                                       H4760100
      DOUBLE PRECISION AWVD,AW1D,AW3D, AW2D                             H4760110
      LOGICAL AWVB,AW1B,AW2B,AW3B,AWFB                                  H4760120
      DIMENSION   AW1C(IWVI),AW2C(IWVI,2),AW3C(IWVI,2,2),               H4760130
     1            AW1B(IWVI),AW2B(IWVI,2),AW3B(IWVI,2,2)    ,           H4760140
     2            AW1S(IWVI),AW2S(IWVI,2),AW3S(IWVI,2,2)    ,           H4760150
     3            AW1D(IWVI),AW2D(IWVI,2),AW3D(IWVI,2,2)    ,           H4760160
     4            IW1I(IWVI),IW2I(IWVI,2),IW3I(IWVI,2,2)              H4760170
      HFB = AWVB.AND.AW1B(IWVI).AND.AW2B(IWVI,IWVI).AND.AW3B(IWVI,      H4760180
     1 IWVI,IWVI).AND.AWFB(1.0)                                         H4760190
      AWVC=AW1C(IWVI)+AW2C(IWVI,IWVI)+AW3C(IWVI,IWVI,IWVI)              H4760200
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      AWVD=AW1D(IWVI)+AW2D(IWVI,IWVI)+AW3D(IWVI,IWVI,IWVI)              H4760210
      AWVS=BXVS+AW1S(IWVI)**IW1I(IWVI)-AW2S(IWVI,IWVI)**IW2I(IWVI,IWVI) H4760220
     1  -AW3S(IWVI,IWVI,IWVI)**IW3I(IWVI,IWVI,IWVI)                     H4760230
      RETURN                                                           H4760240
      END                                                              H4760250
C*****************************************************************************H4070010
C*****                                                                      H4070020
C*****                          AAQ - (407)                               H4070030
C*****                                                                      H4070040
C*****************************************************************************H4070050
C*****    THIS SUBROUTINE IS TO BE RUN WITH SEGMENT 167                   H4070060
      SUBROUTINE AAQ (IWVI, AWVS, IAW1I, IAW2I, AW1S, AW2S, SQFI,        H4070070
     1MWVI, BWVS, CWVS)                                                  H4070080
      DIMENSION  IAW1I(4), IAW2I(3,3), AW1S(4),                          H4070090
     1           AW2S(3,3)                                               H4070100
      IWVI = INT(SQFI(FLOAT(IWVI) + .5)) - 1                           H4070110
      AWVS = AWVS + 1.0                                                H4070120
      IAVI = 5                                                         H4070130
      IAW1I(1) = MWVI                                                  H4070140
      IAW1I(3) = IAW1I(3) + 1                                          H4070150
      IAW2I(3,3) = IAW2I(3,3) + 1                                      H4070160
      AW1S(1) = BWVS                                                   H4070170
      AW2S(1,3) = CWVS                                                 H4070180
C*****                                                                 H4070190
C*****    CALL A SUBROUTINE FROM ANOTHER SUBROUTINE                    H4070200
      CALL ABQ(IAW2I, AW1S, AW2S)                                      H4070210
      RETURN                                                           H4070220
      END                                                              H4070230
C*****************************************************************************H4170010
C*****                                                                      H4170020
C*****                          ABQ - (417)                               H4170030
C*****                                                                      H4170040
C*****************************************************************************H4170050
      SUBROUTINE ABQ(ICW2I, CW1S, CW2S)                                H4170060
      DIMENSION ICW2I(3,3), CW1S(4), CW2S(3,3)                         H4170070
      ICW2I(1,2) = ICW2I(1,2) + 1                                      H4170080
C*****                                                                 H4170090
      CW1S(4) = CW1S(4) + 1.0                                          H4170100
      CW2S(2,3) = CW2S(2,3) + 1.0                                      H4170110
      RETURN                                                           H4170120
      END                                                              H4170130
C*****************************************************************************H4270010
C*****                                                                      H4270020
C*****                          ACQ - (427)                               H4270030
C*****                                                                      H4270040
C*****************************************************************************H4270050
      SUBROUTINE ACQ                                                   H4270060
      DIMENSION  IDX1I(4), IDX2I(3,3), IDX3I(2,2,2)                    H4270070
     1          ,AAX1S(4), AAX2S(3,3)                                  H4270080
      COMMON ABXVS, ACXVS, IAXVI, IDX1I, IDX2I, IDX3I,                 H4270090
     1       AAXVS, AAX1S, AAX2S                                       H4270100
      IAXVI = IAXVI+1                                                  H4270110
      AAXVS = AAXVS +1.0                                               H4270120
      IDX1I(2) = IDX1I(2) + 1                                          H4270130
      IDX2I(1,2) = IDX2I(1,2) + 1                                      H4270140
C*****                                                                 H4270150
      AAX1S(2) = AAX1S(2) * 2. + 1.0                                   H4270160
      AAX2S(1,2) = AAX2S(1,2) + 4.0 - 3.0                              H4270170
C*****                                                                 H4270180
      RETURN                                                           H4270190
C*****    END OF TEST SEGMENT 427                                      H4270200
      END                                                              H4270210
C*****************************************************************************H4080010
C*****                                                                      H4080020
C*****                          ADQ - (408)                               H4080030
C*****                                                                      H4080040
C*****************************************************************************H4080050
C*****  SUBROUTINE ADQ CALLED BY SEG. FSBRT(168)                         H4080060
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      SUBROUTINE ADQ(IWVI,IAW1I,IAW2I,IAW3I,AWVS,AW1S,AW2S,AW3S,          H4080070
     A                AWVD,AW1D,AW2D,AW3D,AWVC,AW1C,AW2C,AW3C,           H4080080
     B                AWVB,AW1B,AW2B,AW3B,KWVI,MWVI,BWVS,CWVS)           H4080090
      DIMENSION IAW1I(4), IAW2I(3,3), IAW3I(2,2,2), AW1S(4), AW2S(3,3),  H4080100
     A          AW3S(2,2,2), AW1D(2), AW2D(2,2), AW3D(2,2,2), AW1C(2),  H4080110
     B         AW2C(2,2), AW3C(2,2,1), AW1B(2), AW2B(2,2),              H4080120
     C          AW3B(2,2,2)                                             H4080130
      DOUBLE PRECISION  AWVD, AW1D, AW2D, AW3D                          H4080140
      COMPLEX           AWVC, AW1C, AW2C, AW3C                          H4080150
      LOGICAL           AWVB, AW1B, AW2B, AW3B                          H4080160
C*****    STORE INTEGER AND REAL EXPRESSIONS                            H4080170
      IAW1I(4) = KWVI                                                   H4080180
      IAW1I(2) = MWVI                                                   H4080190
      AW1S(4) = BWVS                                                    H4080200
      AW1S(2) = CWVS                                                    H4080210
      CALL AEQ (IWVI,IAW1I,IAW2I,IAW3I,AWVS,AW1S,AW2S,AW3S)             H4080220
C*****    INCREMENT DOUBLE PRECISION                                    H4080230
      AWVD = AWVD + AWVD                                                H4080240
      AW1D(1) = AW1D(1) + AW1D(1)                                       H4080250
      AW2D(1,2) = AW2D(1,2) + AW2D(1,2)                                 H4080260
      AW3D(1,1,2) = AW3D(1,1,2) + AW3D(1,1,2)                           H4080270
C*****    INCREMENT COMPLEX                                             H4080280
      AWVC = AWVC + AWVC                                                H4080290
      AW1C(1) = AW1C(1) + AW1C(1)                                       H4080300
      AW2C(1,2) = AW2C(1,2) + AW2C(1,2)                                 H4080310
      AW3C(1,2,1) = AW3C(1,2,1) + AW3C(1,2,1)                           H4080320
C*****    CHANGE LOGICAL                                                H4080330
      AWVB = .NOT. AWVB                                                 H4080340
      AW1B(1) = .NOT. AW1B(1)                                           H4080350
      AW2B(1,2) = .NOT. AW2B(1,2)                                       H4080360
      AW3B(1,1,2) = .NOT. AW3B(1,1,2)                                   H4080370
      RETURN                                                            H4080380
      END                                                               H4080390
C*****************************************************************************H4180010
C*****                                                                 H4180020
C*****                          AEQ - (418)                            H4180030
C*****                                                                 H4180040
C*****************************************************************************H4180050
C*****  SUBROUTINE AEQ CALLED BY SEG  ADQ(408) WHICH IS                H4180060
C*****  CALLED BY SEG. FSBRT(168)                                      H4180070
      SUBROUTINE AEQ(KWVI, KAW1I, KAW2I, KAW3I, AAWVS, AAW1S, AAW2S,    H4180080
     A               AAW3S)                                           H4180090
      DIMENSION KAW1I(4),KAW2I(3,3),KAW3I(2,2,2),AAW1S(4),AAW2S(3,3),   H4180100
     A          AAW3S(2,2,2)                                          H4180110
C*****    INCREMENT INTEGERS                                          H4180120
      KWVI = KWVI + 1                                                   H4180130
      KAW1I(1) = KAW1I(1) + 1                                           H4180140
      KAW2I(1,2) = KAW2I(1,2) + 1                                       H4180150
      KAW3I(1,1,2) = KAW3I(1,1,2)+1                                     H4180160
C*****    INCREMENT REAL                                              H4180170
      AAWVS = AAWVS + 1.                                                H4180180
      AAW1S(1) = AAW1S(1) + 1.                                          H4180190
      AAW2S(1,2) = AAW2S(1,2) + 1.                                      H4180200
      AAW3S(1,1,2) = AAW3S(1,1,2) + 1.                                  H4180210
      RETURN                                                            H4180220
      END                                                               H4180230
C*****************************************************************************H4280010
C*****                                                                 H4280020
C*****                          AFQ - (428)                            H4280030
C*****                                                                 H4280040
C*****************************************************************************H4280050
C*****  SUBROUTINE AFQ CALLED BY SEG. FSBRT(168)                       H4280060
      SUBROUTINE AFQ                                                    H4280070
      COMMON ABXVS, ACXVS, IAXVI, IAX1I(4), IAX2I(3,3), IAX3I(2,2,2),   H4280080
     A       AXVS, AX1S(4), AX2S(3,3), AX3S(2,2,2), AXVD, AX1D(2),      H4280090
     2       AX2D(2,2), AX3D(2,2,2),AXVC, AX1C(2), AX2C(2,2), AX3C(2,2,2)H4280100
     3      ,AXVB, AX1B(2), AX2B(2,2), AX3B(2,2,2)                     H4280110
      DOUBLE PRECISION AXVD, AX1D, AX2D, AX3D                           H4280120
```

```
      COMPLEX AXVC, AX1C, AX2C, AX3C                                    H4280130
      LOGICAL AXVB, AX1B, AX2B, AX3B                                    H4280140
C*****    SET INTEGERS TO 1                                             H4280150
      IAXVI = 1                                                         H4280160
      IAX1I(1) = 1                                                      H4280170
      IAX2I(1,2) = 1                                                    H4280180
      IAX3I(1,1,2) = 1                                                  H4280190
C*****    SET REAL TO 2                                                 H4280200
      AXVS = 2.                                                         H4280210
      AX1S(2) = 2.                                                      H4280220
      AX2S(1,2) = 2.                                                    H4280230
      AX3S(1,1,2) = 2.                                                  H4280240
C*****    SET DP TO 4                                                   H4280250
      AXVD = 4.0D0                                                      H4280260
      AX1O(1) = 4.0D0                                                   H4280270
      AX2D(1,2) = 4.0D0                                                 H4280280
      AX3O(1,1,2) = 4.0D0                                               H4280290
C*****    SET COMPLEX TO 6                                              H4280300
      AXVC = (6.0,6.0)                                                  H4280310
      AX1C(1) = (6.0,6.0)                                               H4280320
      AX2C(1,2) = (6.0,6.0)                                             H4280330
      AX3C(1,1,2) = (6.0,6.0)                                           H4280340
C*****    CHANGE LOGICAL                                                H4280350
      AXVB = .TRUE.                                                     H4280360
      AX1B(1) = .TRUE.                                                  H4280370
      AX2B(1,2) = .TRUE.                                                H4280380
      AX3B(1,1,2) = .TRUE.                                              H4280390
      RETURN                                                            H4280400
      ENO                                                               H4280410
C*******************************************************************************H4090010
C*****                                                                 H4090020
C*****                          BLOKD - (409)                          H4090030
C*****                                                                 H4090040
C*******************************************************************************H4090050
C*****  GENERAL PURPOSE                                                H4090060
C*****    THIS SEGMENT CONTAINS ONE BLOCK OATA SUBPROGRAM.             H4090070
C*****    IT IS TO BE RUN WITH SEGMENT 169                             H4090080
C*****  GENERAL COMMENTS                                               H4090090
C*****    THIS SEGMENT USES ALL THE PERMISSIBLE STATEMENTS IN A        H4090100
C*****    BLOCK OATA SUBPROGRAM. THE OATA STATEMENT CONSISTS OF ALL    H4090110
C*****    TYPES OF VARIABLES ANO ARRAYS.  A HOLLERITH CONSTANT         H4090120
C*****    IS ASSIGNED TO INTEGER, REAL AND LOGICAL                     H4090130
      BLOCK DATA                                                        H4090140
      COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                           H4090150
     A       /BLK2/OXVS, OX1S(2), OX2S(2,2)                           H4090160
     B       /BLK3/DXVD, OX1D(2), DX2O(2,2)                           H4090170
     C       /BLK4/OXVC, DX1C(2), OX2C(2,2)                           H4090180
     D       /BLK5/OXVB, OX1B(2), OX2B(2,2)                           H4090190
     E       /BLK6/JAX3I(2,2,2), DX3S(2,2,2), OX3O(2,2,2),            H4090200
     F             OZ3C(2,2,2), DX3B(2,2,2)                           H4090210
      DIMENSION CY3C(2,2,2)                                             H4090220
      DOUBLE PRECISION DXVO, OX1O, DX2O, DX3D                           H4090230
      COMPLEX          OXVC, OX1C, DX2C, OZ3C, CY3C                     H4090240
      LOGICAL          OXVB, OX1B, DX2B, OX3B                           H4090250
      INTEGER JXVI                                                      H4090260
      REAL OXVS                                                         H4090270
      EQUIVALENCE (OZ3C(1,1,1), CY3C(1,1,1))                           H4090280
      OATA JAX2I(1,1), JAX1I(2), JAX2I(2,1), JAX3I(2,2,1),OX3S(1,2,1), H4090290
     A     OX1S(1), OX2S(1,1), OX3S(2,2,1), DX2O(2,2), OX1D(2),        H4090300
     B     OX2O(2,1), OX3O(2,2,1), OX2C(2,2), OX1C(2), OX2C(2,1),      H4090310
     C     OZ3C(2,1,1), OX2B(2,2), DX1B(2), DX2B(2,1), OX3B(2,2,1),    H4090320
     O     JAX2I(3,1),OX3B(2,1,2),OX2S(2,2)/4*2,4*3.0,4*4.0D0,4*(4.,5.),H4090330
     E      4*.TRUE.,                 2HAB, 2HAB, 2HAB/                H4090340
C*****    END OF TEST SEGMENT 409                                       H4090350
      END                                                               H4090360
 SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT REAO OR WRITE RECORD  2  .  OOUBLE SPACE ON OUTPUT.   ID 2
 OPERATING SYSTEM VERSION
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      DD NDT REAO DR WRITE RECORD  4  .  DDUBLE SPACE DN DUTPUT    ID 4
     DATE, INSTALLATION NAME
           DO NOT READ DR WRITE RECORD 6  DDUBLE SPACE DN DUTPUT    ID 6
C*****     PART12    ************************************************H0005400
C*****                                                               H0005405
C*****     ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS             H0005410
C*****                                                               H0005415
C*****     PREPAREO BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3  H0005420
C*****                                                               H0005425
C*****     JUNE 1974                                                 H0005430
C*****                                                               H0005435
C*****     PART 12 OF 14 PARTS                                       H0005440
C*****                                                               H0005445
C*****     SEGMENTS INCLUOED                                         H0005450
C*****                                                               H0005455
C*****       BLKOA - 179  BLOCK DATA TEST                            H0005460
C*****                                                               H0005465
C*****         BLAKO - 419  BLDCK DATA SUBPRDGRAM                    H0005470
C*****                                                               H0005475
C*****         BLBKD - 429  BLDCK DATA SUBPRDGRAM                    H0005480
C*****                                                               H0005485
C*****         BLCKO - 439  BLOCK DATA SUBPROGRAM                    H0005490
C*****                                                               H0005495
C*****       UNFRW - 180  UNFORMATTED READ  AND WRITE                H0005500
C*****                                                               H0005505
C*****       BACUP - 182  BACKSPACE TAPE                             H0005510
C*****                                                               H0005515
C*****       OOTRM - 190  OO LOOPS (TERMINAL STATEMENTS)             H0005520
C*****                                                               H0005525
C*****       OOLMT - 191  OO LOOPS (INTEGER VARIABLES - PARAMETERS)  H0005530
C*****                                                               H0005535
C*****       OONSC - 192  OO LOOPS (COMPLETELY NESTEO NEST)          H0005540
C*****                                                               H0005545
C*****       OONSI - 193  OO LOOPS (INCOMPLETE)                      H0005550
C*****                                                               H0005555
C*****       ODNSX - 194  OD LOOPS (EXTENOEO RANGE)                  H0005560
C*****                                                               H0005565
C*****       OONML - 195  OO LOOPS (NESTED NEST)                     H0005570
C*****                                                               H0005575
C*****       OONID - 196  OO LOOPS (I/O TERMINAL STATEMENTS)         H0005580
C*****                                                               H0005585
C*****       MORDO - 197  DO LOOPS (I/D, INTRINSIC FUNCTIDN, CALL)   H0005590
C*****                                                               H0005595
C*****         BSFOF - 005  STATEMENT FUNCTIONS                      H0005600
C*****                                                               H0005605
C*****         MOO   - 412  SUBROUTINE SUBPROGRAM                    H0005610
C*****                                                               H0005615
C*****       SUBR1 - 200  SUBROUTINE CALLEO                          H0005620
C*****                                                               H0005625
C*****         SUBRO - 410  SUBRDUTINE SUBPROGRAM                    H0005630
C*****                                                               H0015400
C*****  THE FDLLOWING SPECIFICATIONS ARE TO BE USED DNLY WHEN SEGMENTS  H0015405
C*****       179, 180, 182, 190, 191, 192, 193, 194, 195, 196, 197, 200 H0015410
C*****  ARE RUN AS ONE MAIN PROGRAM.                                 H0015415
C*****                                                               H0015420
      DIMENSION  MCA1I(5)                                          H0015425
      DIMENSION  IV1I(1024), IAC1I(5), AC2S(5,6)                   H0015430
      OIMENSION CMA1S(5), CMB1S(5), AC1S(25)                       H0015435
      INTEGER MCA3I(2,3,3) , I3I(2,2,2)                            H0015440
      LOGICAL  MCAVB, MCBVB, GH2B(1,2)                             H0015445
      OOUBLE PRECISION  CC30(7,2,2), DPAVO, DPBVD                  H0015450
      COMPLEX  NUMVC, OENVC, LL1C(32)                              H0015455
      COMMON  AXVS, CXVS                                           H0015460
      OOUBLE PRECISION DXVO, OX1D, OX2O, OX3O                      H0015465
      COMPLEX          OXVC, DX1C, OX2C, OZ3C                      H0015470
      COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                      H0015475
     A       /BLK2/OXVS, OX1S(2), OX2S(2,2)                        H0015480
     B       /BLK3/DXVD, DX1O(2), OX2O(2,2)                        H0015485
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      C       /BLK4/DXVC, DX1C(2), DX2C(2,2)                                  H0015490
      D       /BLK5/DXVB, DX1B(2), DX2B(2,2)                                  H0015495
      E       /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),                   H0015500
      F             DZ3C(2,2,2), DX3B(2,2,2)// IXVI, IAX1I(4)                 H0015505
       LOGICAL          DXVB, DX1B, DX2B, DX3B                                H0015510
C*****                                                                        H0015515
C*****  END OF SPECIFICATIONS FOR SEGMENTS                                    H0015520
C*****  179, 180, 182, 190, 191, 192, 193, 194, 195, 196, 197, 200            H0015525
C*******************************************************************************H0050500
C*****                                                                        H0050510
C*****                          BSFDF - (005)                                 H0050520
C*****                                                                        H0050530
C*******************************************************************************H0050540
C*****  GENERAL PURPOSE                                              ASA REF  H0050550
C*****     DEFINING STATEMENT FUNCTIONS THAT ARE TO BE TESTED                 H0050560
C*****     IN SEGMENT 197                                             8.1.1H0050570
C*****     HEADER FOR SEGMENT 005                                             H0050580
C*****     DEFINING EXPRESSION CONTAINS CONSTANTS AND VARIABLES               H0050590
      CMAFS(CAWVS,CBWVS) = CAWVS * 2. + CBWVS                                 H0050600
      CMBFS(MAWVI,MBWVI,MCWVI) =(MAWVI + MBWVI + MCWVI)/3                     H0050610
      MCAFI(MAWVI,MBWVI) = MAWVI ** MBWVI                                     H0050620
      MCBFI(CAWVS,CBWVS,CCWVS) = (CAWVS + CBWVS + CCWVS) * 2.0                H0050630
C*****     DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES AND              H0050640
C*****     INTRINSIC FUNCTIONS                                                H0050650
      CMCFS(CAWVS,CBWVS,CCWVS) = ABS(CAWVS**2 - (CBWVS+CCWVS)**2)             H0050660
      CMDFS(MAWVI,MBWVI) = ISIGN((MAWVI+MBWVI),(MAWVI-MBWVI))                 H0050670
      MCCFI(MAWVI,MBWVI,CAWVS) = MAWVI**2 + MBWVI**2 + IFIX(CAWVS)**2         H0050680
      MCDFI(CAWVS,CBWVS,CCWVS,CDWVS,CEWVS) = (CAWVS + CBWVS + CCWVS +         H0050690
     1CDWVS +CEWVS) ** (ABS(CAWVS))                                           H0050700
C*****     DEFINING EXPRESSION CONTAINS PREVIOUSLY DEFINED STATEMENT          H0050710
C*****     FUNCTIONS AND/OR EXTERNAL FUNCTION REFERENCES                      H0050720
      CMEFS(CAWVS,CBWVS) = CMBFS(1,2,3) + SQRT((CAWVS + CBWVS))               H0050730
      CMFFS(MAWVI,MBWVI,MCWVI) = MCCFI(MAWVI,MBWVI,3.0) + MCWVI **2           H0050740
      MCEFI(MAWVI,MBWVI) = MCAFI(MAWVI,MBWVI) ** MCAFI(MAWVI,MBWVI)           H0050750
      MCFFI(CAWVS,CBWVS,CCWVS) = SQRT(CAWVS) + SQRT(CBWVS) + EXP(CCWVS)       H0050760
C*****     DEFINING EXPRESSION CONTAINS CONSTANTS, VARIABLES, INTRINSIC       H0050770
C*****     OR EXTERNAL FUNCTION REFERENCES AND PREVIOUSLY DEFINED             H0050780
C*****     STATEMENT FUNCTIONS.                                               H0050790
      CMGFS(MAWVI,MBWVI,CAWVS,CBWVS) = FLOAT(MAWVI ** 2) - CMAFS(CAWVS,       H0050800
     1CBWVS) + SQRT((FLOAT(MAWVI + MBWVI)))                                   H0050810
      MCGFI(MAWVI,MBWVI,MCWVI,CAWVS) = MCEFI(MAWVI,MBWVI) - MCEFI(MAWVI,      H0050820
     1MCWVI) + IFIX(EXP(CAWVS))                                               H0050830
C*****     END OF TEST SEGMENT 005                                            H0050840
C*******************************************************************************H1790010
C*****                                                                        H1790020
C*****                              BLKDA - (179)                             H1790030
C*****                                                                        H1790040
C*******************************************************************************H1790050
C*****  GENERAL PURPOSE                                              ASA REF  H1790060
C*****     TO TEST BLOCK DATA SUBPROGRAMS                             8.5     H1790070
C*****     THIS SEGMENT IS TO BE RUN WITH SEGMENTS 419, 429, 439.   THIS      H1790080
C*****     SEGMENT WRITES OUT THE DATA FORMED IN SEGMENT 419, 429, 439        H1790090
C*****                                                                        H1790100
C*****  S P E C I F I C A T I O N S  SEGMENT 179                              H1790110
C*****                                                                        H0015530
C*****  WHEN EXECUTING ONLY SEGMENT 179, REMOVE THE PRECEDING                 H0015535
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS WHICH APPEAR            H0015540
C*****  AS COMMENTS MUST HAVE THE  C=  IN COLUMNS  1 AND 2 REMOVED.           H0015545
C*****                                                                        H0015550
C=    DOUBLE PRECISION DXVD, DX1D, DX2D, DX3D                                 H0015555
C=    COMPLEX          DXVC, DX1C, DX2C, DZ3C                                 H0015560
C=    COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                                 H0015565
C=   A       /BLK2/DXVS, DX1S(2), DX2S(2,2)                                   H0015570
C=   B       /BLK3/DXVD, DX1D(2), DX2D(2,2)                                   H0015575
C=   C       /BLK4/DXVC, DX1C(2), DX2C(2,2)                                   H0015580
C=   D       /BLK5/DXVB, DX1B(2), DX2B(2,2)                                   H0015585
C=   E       /BLK6/JAX3I(2,2,2), DX3S(2,2,2), DX3D(2,2,2),                    H0015590
C=   F             DZ3C(2,2,2), DX3B(2,2,2)                                  H0015595
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C=    LOGICAL          DXVB, DX1B, DX2B, DX3B                          H0015600
C*****                                                                 H0015605
C*****  I N P U T - O U T P U T  T A P E  ASSIGNMENT STATEMENTS         H1790120
      IRVI = 5                                                         H0075400
      NUVI = 6                                                         H0075405
      INVI = 9                                                         H0075410
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                       H0075415
      WRITE(NUVI,0071)                                                 H0075420
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//           H0075425
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                 H0075430
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                    H0075435
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                 H0075440
     5 23H  VERSION 3     PART 12///)                                  H0075445
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER      H0075450
C       PREPARED BY USER                                               H0075455
C       READ, NO LIST                                                  H0075460
C       PREPARED BY USER                                               H0075465
C       READ, NO LIST                                                  H0075470
C       PREPARED BY USER                                               H0075475
C       READ, NO LIST                                                  H0075480
      READ(IRVI,0070)                                                  H0075485
      READ(IRVI,0072)                                                  H0075490
      READ(IRVI,0073)                                                  H0075495
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966          /)          H0075500
0072  FORMAT(40H   TEST PROGRAMS                          /)          H0075505
0073  FORMAT(40H   FORTRAN COMPILER                       /)          H0075510
      WRITE(NUVI,0070)                                                 H0075515
      WRITE(NUVI,0072)                                                 H0075520
      WRITE(NUVI,0073)                                                 H0075525
C*****                                                                 H0075530
C*****                                                                 H0075535
C*****    WRITE HEADING FOR SEGMENT 179                                H1790130
      WRITE (NUVI,1790)                                                H1790140
1790  FORMAT (1H1,1X,32HBLKDA - (179) SEVERAL BLOCK DATA/ 16X,         H1790150
     1 11HSUBPROGRAMS/ 2X, 14HASA REF. - 8.5// 9H  RESULTS)           H1790160
      WRITE (NUVI,1791)                                                H1790170
1791  FORMAT (//28H  TEST IS SUCCESSFUL IF EACH/                       H1790180
     A28H  GROUP CONTAINS SAME VALUES)                                 H1790190
      WRITE (NUVI,1792) JXVI, JAX1I(1), JAX2I(1,2), JAX3I(1,1,2), DXVS, H1790200
     A                  DX1S(2), DX2S(1,2), DX3S(1,1,2), DXVD, DX1D(1), H1790210
     B                  DX2D(1,2), DX3D(1,1,2), DXVC, DX1C(1),DX2C(1,2),H1790220
     C                  DZ3C(1,1,2), DXVB, DX1B(1), DX2B(1,2),        H1790230
     D                  DX3B(1,1,2), JAX2I(1,3),                      H1790240
     E                  DX3B(2,2,2), DX2S(2,1)                        H1790250
1792  FORMAT (// 4(I10/)//                                            H1790260
     A             4(F12.1/)//                                       H1790270
     B             4(1PD16.1/)//                                     H1790280
     C             4(0PF6.1,F6.1/)//                                 H1790290
     D             4(L10/)//                                         H1790300
     E             3(2H  ,A2/))                                      H1790310
C*****    END OF TEST SEGMENT 179                                      H1790320
C*****  WHEN EXECUTING ONLY SEGMENT 179, THE  STOP  AND  END  CARDS    H1790330
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H1790340
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H1790350
C=    STOP                                                             H1790360
C=    END                                                              H1790370
C*********************************************************************H1800010
C*****                                                                 H1800020
C*****                        UNFRW - (180)                            H1800030
C*****                                                                 H1800040
C*********************************************************************H1800050
C*****  GENERAL PURPOSE                                    ASA REF    H1800060
C*****    TEST OF UNFORMATTED READ AND WRITE STATEMENTS    7.1.3.2.4H1800070
C*****                                                     7.1.3.2.5H1800080
C*****  S P E C I F I C A T I O N S  SEGMENT 180                       H1800090
C*****                                                                 H0015610
C*****  WHEN EXECUTING ONLY SEGMENT 180, THE SPECIFICATION STATEMENTS  H0015615
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=               H0015620
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C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H0015625
C*****                                                                   H0015630
C=    DIMENSION CMA1S(5), CMB1S(5), AC1S(25)                             H0015635
C*****                                                                   H0015640
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENTS.  NO INPUT TAPE.      H1800100
C*****                                                                   H0075540
C*****  WHEN EXECUTING ONLY SEGMENT 180, THE FOLLOWING STATEMENTS        H0075545
C*****  NUVI=6 AND INVI=9  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.  H0075550
C*****                                                                   H0075555
C=    NUVI = 6                                                           H0075560
C=    INVI = 9                                                           H0075565
C*****                                                                   H0075570
      WRITE (NUVI,0180)                                                  H1800110
180   FORMAT(1H1,1X,30HUNFRW - (180) UNFORMATTED READ/ 14X,              H1800120
     122H  AND WRITE STATEMENTS//36H  ASA REFS - 7.1.3.2.4 AND 7.1.3.2.5H1800130
     2//10H  RESULTS )                                                   H1800140
C*****    HEADER FOR SEGMENT 180 WRITTEN                                 H1800150
      CMAVS = 1.5E01                                                     H1800160
      CMBVS = -2.75E-0                                                   H1800170
      MCAVI = 5                                                          H1800180
      MCBVI = -10                                                        H1800190
      DPAVS = 1.02E0                                                     H1800200
      DPBVS = 9876.0E-2                                                  H1800210
      CMA1S(1) = 1.0E0                                                   H1800220
      CMA1S(2) = 2.0E0                                                   H1800230
      CMA1S(3) = 3.0E0                                                   H1800240
      CMA1S(4) = 4.0E0                                                   H1800250
      CMA1S(5) = 5.0E0                                                   H1800260
C*****    WRITE AND READ VARIABLES OF THE SAME TYPE                      H1800270
      REWIND INVI                                                        H1800280
      WRITE (INVI) CMAVS, CMBVS                                          H1800290
      WRITE (INVI) MCAVI, MCBVI                                          H1800300
      WRITE (INVI) DPAVS, DPBVS                                          H1800310
      WRITE (INVI) CMA1S                                                 H1800320
      WRITE (INVI) (CMA1S(IVI), IVI = 1,5,1 )                            H1800330
      REWIND INVI                                                        H1800340
      READ (INVI) CMCVS, CMDVS                                           H1800350
      READ (INVI) MCCVI, MCDVI                                           H1800360
      READ (INVI) DPCVS, DPDVS                                           H1800370
      READ (INVI) CMB1S                                                  H1800380
      READ (INVI) (AC1S(IVI), IVI = 1,5,1 )                              H1800390
C*****    CHECK RECORDS BY SUBTRACTING CORRESPONDING VALUES.              H1800400
      CMEVS = CMAVS - CMCVS                                              H1800410
      CMFVS = CMBVS - CMDVS                                              H1800420
      MCEVI = MCAVI - MCCVI                                              H1800430
      MCFVI = MCBVI - MCDVI                                              H1800440
      DPEVS = DPAVS - DPCVS                                              H1800450
      DPFVS = DPBVS - DPDVS                                              H1800460
      ACVS = CMA1S(1) - CMB1S(1)                                         H1800470
      BCVS = CMA1S(2) - CMB1S(2)                                         H1800480
      CCVS = CMA1S(3) - CMB1S(3)                                         H1800490
      DCVS = CMA1S(4) - CMB1S(4)                                         H1800500
      FFCVS = CMA1S(5)- CMB1S(5)                                         H1800510
      CMGVS = CMA1S(1) - AC1S(1)                                         H1800520
      CMHVS = CMA1S(2) - AC1S(2)                                         H1800530
      CMIVS = CMA1S(3) - AC1S(3)                                         H1800540
      CMJVS = CMA1S(4) - AC1S(4)                                         H1800550
      CMKVS = CMA1S(5) - AC1S(5)                                         H1800560
      WRITE (NUVI,181) CMEVS, CMFVS, MCEVI, MCFVI, DPEVS, DPFVS,         H1800570
     1         ACVS, BCVS, CCVS, DCVS, FFCVS, CMGVS, CMHVS, CMIVS, CMJVS,H1800580
     2         CMKVS                                                     H1800590
0181  FORMAT (//2(F20.10/),2(I19/),7(F20.10/))                           H1800600
C*****    READ AND WRITE VARIABLES OF DIFFERENT TYPES                    H1800610
      REWIND INVI                                                        H1800620
      WRITE (INVI) CMAVS, MCAVI                                          H1800630
      WRITE (INVI) CMA1S(1), CMA1S(2), CMBVS, MCBVI                      H1800640
      WRITE (INVI) CMA1S(3), CMA1S(4), CMA1S(5), DPAVS, DPBVS            H1800650
      REWIND INVI                                                        H1800660
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      READ (INVI) CMCVS, MCCVI                                          H1800670
      READ (INVI) CMB1S(1), CMB1S(2), CMOVS, MCDVI                      H1800680
      READ (INVI) CMB1S(3), CMB1S(4), CMB1S(5), OPCVS, DPDVS            H1800690
      CMEVS = CMAVS - CMCVS                                             H1800700
      CMFVS = CMBVS - CMDVS                                             H1800710
      MCEVI = MCAVI - MCCVI                                             H1800720
      MCFVI = MCBVI - MCDVI                                             H1800730
      OPEVS = OPAVS - OPCVS                                             H1800740
      DPFVS = DPBVS - OPOVS                                             H1800750
      CMGVS = CMA1S(1) - CMB1S(1)                                       H1800760
      CMHVS = CMA1S(2) - CMB1S(2)                                       H1800770
      CMIVS = CMA1S(3) - CMB1S(3)                                       H1800780
      CMJVS = CMA1S(4) -CMB1S(4)                                        H1800790
      CMKVS = CMA1S(5) - CMB1S(5)                                       H1800800
      WRITE (NUVI,0182) CMEVS, CMFVS, MCEVI, MCFVI, DPEVS, DPFVS, CMGVS,H1800810
     1 CMHVS, CMIVS, CMJVS, CMKVS                                       H1800820
0182  FORMAT (//2(F20.10/),2(I19/),7(F20.10/))                          H1800830
C*****    TEST UNFORMATTED READ WITH NO LIST                          H1800840
      REWIND INVI                                                       H1800850
      WRITE (INVI) CMAVS, MCAVI                                         H1800860
      WRITE (INVI) CMA1S                                                H1800870
      WRITE (INVI) CMBVS, MCBVI                                         H1800880
      WRITE (INVI) CMA1S(5),CMA1S(4),CMA1S(3),CMA1S(2),CMA1S(1)         H1800890
C*****    ENDFILE CAN NOT BE TESTED, BUT INCLUDED FOR ACCEPTANCE AS     H1800900
C*****    A STATEMENT.                                                H1800910
      ENDFILE INVI                                                      H1800920
      REWIND INVI                                                       H1800930
C*****CHECK THAT A RECORD IS READ WHEN NO LIST IS SUPPLIED BY COMPARING H1800940
C***** VALUES OF THE THIRD RECORD                                       H1800950
      READ (INVI) CMCVS, MCCVI                                          H1800960
      READ (INVI)                                                       H1800970
      READ (INVI) CMOVS, MCOVI                                          H1800980
      CMEVS = CMAVS - CMCVS                                             H1800990
      CMFVS = CMBVS - CMDVS                                             H1801000
      MCEVI = MCAVI - MCCVI                                             H1801010
      MCFVI = MCBVI - MCDVI                                             H1801020
      WRITE (NUVI, 0183)  CMEVS, CMFVS, MCEVI, MCFVI                    H1801030
  183 FORMAT(//2(F20.10/),2(I19/))                                      H1801040
      WRITE (NUVI,0184)                                                 H1801050
  184 FORMAT(37H0 ALL ABOVE ANSWERS SHOULD BE ZERO IF /                 H1801060
     1       37H  THE READ AND WRITE RECORDS COMPARE. )                 H1801070
      REWIND INVI                                                       H1801080
C*****    END OF TEST SEGMENT 180                                     H1801090
C*****  WHEN EXECUTING ONLY SEGMENT 180, THE  STOP  AND  END          H1801100
C*****  CARDS WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE C=         H1801110
C*****  IN COLUMNS  1  AND  2  REMOVED.                               H1801120
C=    STOP                                                            H1801130
C=    END                                                             H1801140
C*************************************************************************H1820010
C*****                                                                 H1820020
C*****                          BACUP (182)                            H1820030
C*****                                                                 H1820040
C*************************************************************************H1820050
C*****  GENERAL PURPOSE                                      ASA REF  H1820060
C*****    WRITE A BLOCK, 1024 WORDS IN LENGTH, UNFORMATTED,  7.1.3.2.5H1820070
C*****    TO TAPE,BACKSPACE, READ TO MEMORY                  7.1.3.3.2H1820080
C*****                                                       7.1.3.2.4H1820090
C*****  S P E C I F I C A T I O N S  SEGMENT 182                       H1820100
C*****                                                                 H0015645
C*****  WHEN EXECUTING ONLY SEGMENT 182, THE SPECIFICATION STATEMENTS  H0015650
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                 H0015655
C*****  IN COLUMNS  1  AND  2  REMOVED.                               H0015660
C*****                                                                 H0015665
C=    DIMENSION IV1I(1024)                                            H0015670
C*****                                                                 H0015675
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENTS.  NO INPUT TAPE.   H1820110
C*****                                                                 H0075575
C*****  WHEN EXECUTING ONLY SEGMENT 182, THE FOLLOWING STATEMENTS      H0075580
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C*****  NUVI=6 ANO IRVI=9 MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVEO.  H0075585
C*****                                                                 H0075590
C=     NUVI = 6                                                        H0075595
C=     INVI = 9                                                        H0075600
C*****                                                                 H0075605
1820  FORMAT(1H1,1X,28HBACUP - (182) BACKSPACE TAPE//2X,18HASA REF. 7.1.H1820120
     33.3.2//9H  RESULTS)                                             H1820130
      WRITE(NUVI,1820)                                                 H1820140
C*****  HEAOER FOR SEGMENT 182 WRITTEN                                 H1820150
C*****                                                                 H1820160
      REWINO INVI                                                      H1820170
C*****  CREATE A LIST, 1024 WOROS IN LENGTH, CONTAINING                H1820180
C*****  THE INTEGERS 1 TO 1024, ONE INTEGER PER WORO.                  H1820190
      ISVI = 0                                                         H1820200
      MRRVI = 1                                                        H1820210
1821  ISVI = ISVI + 1                                                  H1820220
      IV1I(ISVI) = ISVI                                                H1820230
      IF (ISVI - 1024) 1821, 1822, 1823                                H1820240
C*****  WRITE THE LIST TO AN INTERMEOIATE TAPE                         H1820250
1822  WRITE (INVI) IV1I                                                H1820260
      WRITE(NUVI,1828) MRRVI, (IV1I(JCVI), JCVI=1,9),                  H1820270
     1 (IV1I(KCVI),KCVI=1016,1024)                                     H1820280
C*****  CHANGE MEMORY VALUES TO 5 TIMES THE ORIGINAL VALUES            H1820290
      MRRVI = 2                                                        H1820300
      ISVI = 0                                                         H1820310
1825  ISVI = ISVI + 1                                                  H1820320
      IV1I(ISVI) = 5 * ISVI                                            H1820330
      IF (ISVI - 1024) 1825,1826,1823                                  H1820340
1826  BACKSPACE  INVI                                                  H1820350
C*****  WRITE THE CHANGEO VALUES                                       H1820360
      WRITE(NUVI,1828) MRRVI, (IV1I(JCVI), JCVI=1,9),                  H1820370
     1 (IV1I(KCVI),KCVI=1016,1024)                                     H1820380
      MRRVI = 3                                                        H1820390
C*****  REAO INTERMEOIATE TAPE WHICH HAS BEEN BACKSPACEO               H1820400
      REAO(INVI) IV1I                                                  H1820410
      REWINO INVI                                                      H1820420
C*****  WRITE INITIAL VALUES FROM BACKSPACEO TAPE.                     H1820430
      WRITE(NUVI,1828) MRRVI,(IV1I(LVI), LVI=1,9),(IV1I(KVI),KVI=      H1820440
     1   1016, 1024)                                                   H1820450
1823  WRITE (NUVI,1829)                                                H1820460
1828  FORMAT(//7H  GROUP,I3,3(/2X,3(I6)), 3(/2X,3(I6)))                H1820470
1829  FORMAT(//2X,33HGROUPS 1 ANO 3 SHOULO BE THE SAME/                H1820480
     I  30H  ANO GROUP 2, 5 TIMES GROUP 1)                             H1820490
C*****    ENO OF TEST SEGMENT 182                                      H1820500
C*****  WHEN EXECUTING ONLY SEGMENT 182, THE  STOP  ANO  ENO           H1820510
C*****  CAROS WHICH APPEAR AS COMMENT CAROS, MUST HAVE THE C=          H1820520
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                H1820530
C=     STOP                                                            H1820540
C=     END                                                             H1820550
C*************************************************************************H1900010
C*****                                                                 H1900020
C*****                          OOTRM - (190)                          H1900030
C*****                                                                 H1900040
C*************************************************************************H1900050
C*****                                                                 H1900060
C*****  GENERAL PURPOSE                                    ASA REF     H1900070
C*****    OO LOOPS TESTEO WITH ALL ALLOWABLE               7.1.2.8     H1900080
C*****    TERMINAL STATEMENTS (I/O TESTEO SEPARATELY)                  H1900090
C*****    CONTINUE, ASSIGN, LOGICAL IF                                 H1900100
C*****  RESTRICTIONS OBSERVED                                          H1900110
C*****  * M1, M2 AND M3 ARE GREATER THAN ZERO                7.1.2.8/23H1900120
C*****  * TERMINAL STATEMENT OF EACH OO PHYSICALLY FOLLOWS   7.1.2.8/08H1900130
C*****    THE OO ANO IS IN THE SAME PROGRAM UNIT                       H1900140
C*****  * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A         7.1.2.8/07H1900150
C*****    GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR       7.1.2.8/10H1900160
C*****    OO STATEMENT                                                 H1900170
C*****  * M1, M2 ANO M3 ARE NOT REOEFINEO WITHIN OO        7.1.2.8.2/54H1900180
C*****  * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN     7.1.2.8.2/01H1900190
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C*****    ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                H1900200
C*****  * CONTROL IS NEVER PASSED INTO RANGE OF DO FROM     7.1.2.8.2/44H1900210
C*****    OUTSIDE ITS RANGE                                             H1900220
C*****                                                                  H1900230
C*****  S P E C I F I C A T I O N S  SEGMENT 190                        H1900240
C*****                                                                  H0015680
C*****  WHEN EXECUTING ONLY SEGMENT 190, THE SPECIFICATION STATEMENTS   H0015685
C*****  WHICH APPEAR AS COMMENT CAROS, MUST HAVE THE  C=                H0015690
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                 H0015695
C*****                                                                  H0015700
C=     OIMENSION IAC1I(5)                                               H0015705
C*****                                                                  H0015710
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.      H1900250
C*****                                                                  H0075610
C*****  WHEN EXECUTING ONLY SEGMENT 190, THE FOLLOWING STATEMENT        H0075615
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVEO.          H0075620
C*****                                                                  H0075625
C=     NUVI = 6                                                         H0075630
C*****                                                                  H0075635
       WRITE (NUVI,8906)                                                H1900260
8906   FORMAT (1H1,1X,25HOOTRM - (190) OO TERMINAL//2X,                 H1900270
      -17HASA REF - 7.1.2.8//2X,7HRESULTS)                              H1900280
C*****    HEAOER FOR SEGMENT 190                                        H1900290
C*****    CONTINUE WITH EXPLICIT INCREMENT**********************7.1.2.8 H1900300
       WRITE (NUVI,8905)                                                H1900310
8905   FORMAT    (//2X,23HTEST1 CONTINUE EXPLICIT)                      H1900320
C*****    HEADER FOR CONTINUE EXPLICIT TEST                             H1900330
       OO 1901 JACVI = 1,4,1                                            H1900340
            IAC1I(JACVI) = JACVI                                        H1900350
1901   CONTINUE                                                         H1900360
       IF (IAC1I(1)-1) 1909,1902,1909                                   H1900370
1902   IF (IAC1I(2)-2) 1909,1903,1909                                   H1900380
1903   IF (IAC1I(3)-3) 1909,1904,1909                                   H1900390
1904   IF (IAC1I(4)-4) 1909,1905,1909                                   H1900400
C*****    WRITE OUT ERROR MESSAGE                                       H1900410
1909   MRRVI=1                                                          H1900420
       WRITE (NUVI,8904)MRRVI                                           H1900430
8904   FORMAT    (/2X,6H**TEST,I1,1X,17HINOICATES ERROR**)              H1900440
C*****    ERROR  FOR CONTINUE EXPLICIT TEST                             H1900450
       GO TO 8909                                                       H1900460
C*****    NO ERROR                                                      H1900470
C*****    WRITE OUT CONTINUE EXPLICIT TEST IS SUCCESS                   H1900480
1905   MRRVI=1                                                          H1900490
       WRITE (NUVI,8903)MRRVI                                           H1900500
8903   FORMAT    (/2X,6H**TEST,I1,1X,12HSUCCESSFUL**)                  H1900510
C*****   SUCCESS FOR CONTINUE EXPLICIT TEST                             H1900520
C*****    CONTINUE TERMINAL IMPLIED TEST**********************7.1.2.8 H1900530
       WRITE (NUVI,8902)                                                H1900540
8902   FORMAT   (//2X,22HTEST2 CONTINUE IMPLIEO)                       H1900550
C*****    HEAOER FOR CONTINUE IMPLIEO TEST                              H1900560
8909   LCCVI=2                                                          H1900570
       OO  7900   KBCVI = LCCVI,4                                       H1900580
7900   IAC1I(KBCVI) = KBCVI + 1                                         H1900590
C*****    CHECK VALUES IN IAC1I ARRAY                                   H1900600
       IF (IAC1I(2)-3) 7909,8900,7909                                   H1900610
8900   IF (IAC1I(3)-4) 7909,8901,7909                                   H1900620
8901   IF (IAC1I(4)-5) 7909,7901,7909                                   H1900630
7909   MRRVI=2                                                          H1900640
       WRITE (NUVI,8904)MRRVI                                           H1900650
C*****    ERROR IN CONTINUE IMPLIEO TEST                                H1900660
       GO TO 8908                                                       H1900670
C*****    WRITE OUT CONTINUE IMPLIEO IS SUCCESS                         H1900680
7901   MRRVI=2                                                          H1900690
       WRITE (NUVI,8903)MRRVI                                           H1900700
C*****    SUCCESS IN CONTINUE IMPLIEO TEST                              H1900710
C*****    ASSIGN TERMINAL TEST **********************************7.1.2.8 H1900720
       WRITE (NUVI,9908)                                                H1900730
9908   FORMAT   (//2X,12HTEST3 ASSIGN)                                 H1900740
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C*****     HEADER FOR ASSIGN TEST                                                H1900750
8908  MOCVI = 0                                                                  H1900760
      ASSIGN 7904 TO JFCVI                                                       H1900770
      DO  7902  NECVI = 2,5,2                                                    H1900780
          MOCVI = MOCVI +1                                                       H1900790
7902  ASSIGN 7903 TO JFCVI                                                       H1900800
      GO TO JFCVI, (7903,7904,7904)                                              H1900810
C*****     AN ERROR IN ASSIGN TEST                                               H1900820
7904  MRRVI=3                                                                    H1900830
      WRITE (NUVI,8904)MRRVI                                                     H1900840
C*****     ERROR FOR ASSIGN TEST                                                 H1900850
      GO TO 8907                                                                 H1900860
7903  IF (MDCVI-2) 7904,7905,7904                                                H1900870
C*****     ASSIGN TEST IS SUCCESS                                                H1900880
7905  MRRVI=3                                                                    H1900890
      WRITE (NUVI,8903)MRRVI                                                     H1900900
C*****     SUCCESS FOR ASSIGN TEST                                               H1900910
C*****     LOGICAL IF TERMINAL TEST*********************************7.1.2.8 H1900920
      WRITE (NUVI,9905)                                                          H1900930
9905  FORMAT    (//2X,16HTEST4 LOGICAL IF)                                       H1900940
C*****     HEADER FOR LOGICAL IF TEST                                            H1900950
8907  KGCVI = 1                                                                  H1900960
      LHCVI = 3                                                                  H1900970
      ASSIGN 7908 TO KCVI                                                        H1900980
      OO  7906  JCVI = 1,3                                                       H1900990
      KGCVI = KGCVI +1                                                           H1901000
7906  IF (KGCVI .EQ. LHCVI) ASSIGN 7907 TO KCVI                                  H1901010
      GO TO KCVI, (7908,7907,7908)                                               H1901020
C*****     TEST IS SUCCESS                                                       H1901030
7907  MRRVI=4                                                                    H1901040
      WRITE (NUVI,8903)MRRVI                                                     H1901050
C*****     SUCCESS FOR LOGICAL IF TEST                                           H1901060
      GO TO 9902                                                                 H1901070
C*****     LOGICAL IF IS NOT SUCCESS                                             H1901080
7908  MRRVI=4                                                                    H1901090
      WRITE (NUVI,8904)MRRVI                                                     H1901100
C*****     ERROR FOR LOGICAL IF TEST                                             H1901110
9902  CONTINUE                                                                   H1901120
C*****     END OF TEST SEGMENT 190                                               H1901130
C*****  WHEN EXECUTING ONLY SEGMENT 190, THE  STOP  AND  END  CARDS              H1901140
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                          H1901150
C*****  IN COLUMNS  1  AND  2  REMOVED.                                          H1901160
C=    STOP                                                                       H1901170
C=    END                                                                        H1901180
C*************************************************************************H1910010
C*****                                                                         H1910020
C*****                          DOLMT - (191)                                  H1910030
C*****                                                                         H1910040
C*************************************************************************H1910050
C*****  GENERAL PURPOSE                                          ASA REF H1910060
C*****     TEST DO LOOPS WHERE                                7.1.2.8/18H1910070
C*****          INITIAL                                                       H1910080
C*****          TERMINAL                                                      H1910090
C*****          INCREMENT VALUES                                              H1910100
C*****     ARE COMPUTED AND SET AT OBJECT TIME                                H1910110
C*****  RESTRICTIONS OBSERVED                                                 H1910120
C*****  * M1, M2 AND M3 ARE GREATER THAN ZERO                 7.1.2.8/21H1910130
C*****  * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS    7.1.2.8/08H1910140
C*****     THE DO AND IS IN THE SAME PROGRAM UNIT                             H1910150
C*****  * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A          7.1.2.8/07H1910160
C*****     GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR       7.1.2.8/10H1910170
C*****     DO STATEMENT                                                       H1910180
C*****  * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO         7.1.2.8.2/54H1910190
C*****  * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN      7.1.2.8.2/01H1910200
C*****     ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                     H1910210
C*****  * CONTROL IS NEVER PASSED INTO RANGE OF DO FROM     7.1.2.8.2/44H1910220
C*****     OUTSIDE ITS RANGE                                                  H1910230
C*****                                                                        H1910240
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C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.      H1910250
C*****                                                                  H0075640
C*****  WHEN EXECUTING ONLY SEGMENT 191, THE FOLLOWING STATEMENT        H0075645
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          H0075650
C*****                                                                  H0075655
C=     NUVI = 6                                                         H0075660
C*****                                                                  H0075665
       WRITE (NUVI,1914)                                                H1910260
1914   FORMAT (1H1,1X,27HDOLMT - (191) DO SET LIMITS//2X,               H1910270
     - 18HASA REF. - 7.1.2.8//2X,7HRESULTS)                             H1910280
C*****     HEADER FOR SEGMENT 191 WRITTEN                               H1910290
       JACVI = 1                                                        H1910300
       KBCVI = 3                                                        H1910310
       LCCVI = 1                                                        H1910320
       NECVI = 0                                                        H1910330
       DO  1911 MDCVI = JACVI, KBCVI, LCCVI                             H1910340
         NECVI = NECVI + JACVI + KBCVI + MOCVI + LCCVI                  H1910350
1911   CONTINUE                                                         H1910360
       IF (NECVI-21) 1913,1912,1913                                     H1910370
C*****     ERROR                                                        H1910380
1913   WRITE (NUVI,1915)                                                H1910390
1915   FORMAT     (/2X,24H**TEST INOICATES ERROR**//2X,10H**********)   H1910400
C*****     OOLMT TEST FAILS,LIMIT VALUE SET INCORRECTLY                 H1910410
       GO TO 1917                                                       H1910420
C*****     CORRECT                                                      H1910430
1912   WRITE (NUVI,1916)                                                H1910440
1916   FORMAT     (/2X,19H**TEST SUCCESSFUL**)                          H1910450
C*****     DOLMT TEST IS SUCCESSFUL                                     H1910460
1917   CONTINUE                                                         H1910470
C*****     ENO OF TEST SEGMENT 191                                      H1910480
C*****  WHEN EXECUTING ONLY SEGMENT 191, THE  STOP  AND  END  CARDS     H1910490
C*****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE  C=                 H1910500
C*****  IN COLUMNS  1  AND  2  REMOVEO.                                 H1910510
C=     STOP                                                             H1910520
C=     ENO                                                              H1910530
C*****************************************************************************H1920010
C*****                                                                  H1920020
C*****                              OONSC - (192)                       H1920030
C*****                                                                  H1920040
C*****************************************************************************H1920050
C*****  GENERAL PURPOSE                                        ASA REF  H1920060
C*****     TEST NESTED DO LOOPS                               7.1.2.8/28H1920070
C*****     WITH 2, 3, 4, 5 LEVELS                                       H1920080
C*****  SPECIAL CONSIOERATION                                           H1920090
C*****     5 LEVELS ARBITRARILY ASSIGNEO AS MINIMUM REQUIREMENT         H1920100
C*****  RESTRICTIONS OBSERVEO                                           H1920110
C*****  * M1, M2 ANO M3 ARE GREATER THAN 2ERO                7.1.2.8/21H1920120
C*****  * TERMINAL STATEMENT OF EACH OO PHYSICALLY FOLLOWS   7.1.2.8/08H1920130
C*****     THE DO ANO IS IN THE SAME PROGRAM UNIT                       H1920140
C*****  * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A         7.1.2.8/07H1920150
C*****     GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR      7.1.2.8/10H1920160
C*****     DO STATEMENT                                                 H1920170
C*****  * M1, M2 ANO M3 ARE NOT REOEFINED WITHIN DO       7.1.2.8.2/54H1920180
C*****  * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN    7.1.2.8.2/01H1920190
C*****     ONE OO ARE CONTAINEO IN INNERMOST OO OF A NEST               H1920200
C*****                                                                  H1920210
C*****  S P E C I F I C A T I O N S  SEGMENT 192                        H1920220
C*****                                                                  H0015715
C*****  WHEN EXECUTING ONLY SEGMENT 192, THE SPECIFICATION STATEMENTS   H0015720
C*****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE C=                  H0015725
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                 H0015730
C*****                                                                  H0015735
C=     INTEGER MCA3I(2,3,3)                                             H0015740
C*****                                                                  H0015745
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.      H1920230
C*****                                                                  H0075670
C*****  WHEN EXECUTING ONLY SEGMENT 192, THE FOLLOWING STATEMENT        H0075675
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          H0075680
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C*****                                                                  H0075685
C=    NUVI = 6                                                          H0075690
C*****                                                                  H0075695
      WRITE (NUVI,8920)                                                 H1920240
8920  FORMAT (1H1,1X,26HDONSC - (192) NESTED LOOPS// 2X,                H1920250
     -18HASA REF. - 7.1.2.8//2X,7HRESULTS)                              H1920260
C*****    HEADER FOR SEGMENT 192 WRITTEN                                H1920270
C*****    TWO LEVELS OF NESTING**********************************************H1920280
      MRRVI=2                                                           H1920290
      WRITE (NUVI,8921)MRRVI                                            H1920300
8921  FORMAT    (//2X,I1,1X,17HLEVELS OF NESTING)                       H1920310
C*****    HEADER FOR TWO LEVELS                                         H1920320
      JACVI = 0                                                         H1920330
      DO  1922 KBCVI = 1, 2, 1                                          H1920340
      JACVI = KBCVI*3 + JACVI                                           H1920350
        DO  1921  LCCVI = 1,5,  2                                       H1920360
        JACVI = JACVI + LCCVI                                           H1920370
1921    CONTINUE                                                        H1920380
1922  CONTINUE                                                          H1920390
C*****    TEST JACVI FOR VALUE OF 27                                    H1920400
      IF (JACVI-27) 1924,1923,1924                                      H1920410
C*****    CORRECT                                                       H1920420
1923  WRITE (NUVI,8922)                                                 H1920430
8922  FORMAT  (2X,19H**TEST SUCCESSFUL**)                               H1920440
C*****    TWO LEVELS OF NESTING IS CORRECT                              H1920450
      GO TO 7927                                                        H1920460
C*****    ERROR                                                         H1920470
1924  WRITE (NUVI,8923)                                                 H1920480
8923  FORMAT  (2X,24H**TEST INDICATES ERROR**)                          H1920490
C*****    TWO LEVELS OF NESTING IN ERROR                                H1920500
C*****    THREE LEVELS OF NESTING********************************************H1920510
7927  MRRVI=3                                                           H1920520
      WRITE (NUVI,8921)MRRVI                                            H1920530
C*****    HEADER FOR THREE LEVELS                                       H1920540
      MDCVI = 0                                                         H1920550
      DO  1927  LCCVI = 6,7                                             H1920560
        DO 1926  KBCVI = 8,10,2                                         H1920570
          DO 1925  JACVI = 1,3,1                                        H1920580
          MDCVI = MDCVI + JACVI + KBCVI + LCCVI                         H1920590
1925      CONTINUE                                                      H1920600
1926    CONTINUE                                                        H1920610
1927  CONTINUE                                                          H1920620
C*****    TEST MDCVI FOR VALUE OF 210                                   H1920630
      IF (MDCVI - 210) 1928,1929,1928                                   H1920640
C*****    ERROR                                                         H1920650
1928  WRITE (NUVI,8923)                                                 H1920660
C*****    THREE LEVELS OF NESTING IN ERROR                              H1920670
      GO TO 7928                                                        H1920680
C*****    CORRECT                                                       H1920690
1929  WRITE (NUVI,8922)                                                 H1920700
C*****    THREE LEVELS OF NESTING IS CORRECT                            H1920710
C*****    FOUR LEVELS OF NESTING*********************************************H1920720
7928  MRRVI=4                                                           H1920730
      WRITE (NUVI,8921)MRRVI                                            H1920740
C*****    HEADER FOR FOUR LEVELS                                        H1920750
      IHDVI = 0                                                         H1920760
      IGDVI = 0                                                         H1920770
      IFDVI = 0                                                         H1920780
      IEDVI = 0                                                         H1920790
      ICVI = 1                                                          H1920800
      DO  7920  MDCVI = 2,3                                             H1920810
      IHDVI = IHDVI + MDCVI + IEDVI                                     H1920820
        DO 7920  LCCVI = 3,5,3                                          H1920830
        IGDVI = IGDVI + LCCVI + IHDVI                                   H1920840
          DO 7920 KBCVI = 1,2,ICVI                                      H1920850
          IFDVI = IFDVI + KBCVI + IGDVI                                 H1920860
            DO 7920  JACVI = 4,5,2                                      H1920870
            IEDVI = IEDVI + JACVI + IFDVI                               H1920880
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7920  CONTINUE                                                          H1920890
C*****     TEST IEDVI FOR VALUE OF 185                                  H1920900
      IF (IEDVI - 185)  7921,7922,7921                                  H1920910
C*****     ERROR                                                        H1920920
7921  WRITE (NUVI,8923)                                                 H1920930
C*****     FOUR LEVELS OF NESTING IN ERROR                              H1920940
      GO TO 7929                                                        H1920950
C*****     CORRECT                                                      H1920960
7922  WRITE (NUVI,8922)                                                 H1920970
C*****     FOUR LEVELS OF NESTING IS CORRECT                            H1920980
C*****     FIVE LEVELS OF NESTING**************************************H1920990
7929  MRRVI=5                                                           H1921000
      WRITE (NUVI,8921)MRRVI                                            H1921010
C*****     HEADER FOR FIVE LEVELS                                       H1921020
      IGDVI = 0                                                         H1921030
      DO  7923  NECVI = 10,11,1                                         H1921040
        DO 7923 MDCVI = 4,5,1                                           H1921050
          DO 7924 LCCVI = 1,2,3                                         H1921060
            DO 7924 KBCVI = 6, 8, 4                                     H1921070
              DO 7924 JACVI = 1,3,2                                     H1921080
              IGDVI=IGDVI+JACVI-KBCVI+LCCVI-MDCVI+NECVI                 H1921090
7924  CONTINUE                                                          H1921100
7923  CONTINUE                                                          H1921110
C*****     TEST IGDVI FOR VALUE OF 24                                   H1921120
      IF (IGDVI - 24)  7925, 7926,7925                                  H1921130
C*****     ERROR                                                        H1921140
7925  WRITE (NUVI,8923)                                                 H1921150
C*****     FIVE LEVELS IN ERROR                                         H1921160
      GO TO 9923                                                        H1921170
7926  WRITE (NUVI,8922)                                                 H1921180
C*****     FIVE LEVELS CORRECT                                          H1921190
C*****  CONTROL VARIABLES FOR 3 DO LOOPS USED IN SUBSCRIPT EXPRESSIONS  H1921200
C*****  FOR A 3 DIMENSIONAL ARRAY                                       H1921210
9923  WRITE(NUVI, 9920)                                                 H1921220
9920  FORMAT(//2X,34HCONTROL VARIABLE USED IN SUBSCRIPT )               H1921230
      IVI = 1                                                           H1921240
      KVI = 0                                                           H1921250
8924  KVI = KVI + 1                                                     H1921260
      JVI = 0                                                           H1921270
8925  JVI = JVI + 1                                                     H1921280
      MCA3I(IVI,JVI,KVI) = IVI + 2*(JVI-1)+ 6*(KVI-1)                   H1921290
      MCA3I(IVI+1,JVI,KVI) = IVI+1 +2*(JVI-1)+6*(KVI-1)                 H1921300
      IF(JVI-3) 8925,8926,8929                                          H1921310
8926  IF(KVI-3)8924,8927,8929                                           H1921320
8927  IIVI = 1                                                          H1921330
      DO 8928 KVI =1,3                                                  H1921340
       DO 8928  JVI = 1,3                                               H1921350
         DO 8928  IVI = 1,2                                             H1921360
      IAVI =MCA3I(IVI,JVI,KVI) - IIVI                                   H1921370
      IF (IAVI) 8929, 8928, 8929                                        H1921380
8928  IIVI = IIVI + 1                                                   H1921390
      WRITE (NUVI, 8922)                                                H1921400
      GO TO 9921                                                        H1921410
8929  WRITE (NUVI, 8923)                                                H1921420
9921  CONTINUE                                                          H1921430
C*****     END OF TEST SEGMENT 192                                      H1921440
C*****  WHEN EXECUTING ONLY SEGMENT 192, THE  STOP  AND  END  CARDS     H1921450
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1921460
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1921470
C=    STOP                                                              H1921480
C=    END                                                               H1921490
C*************************************************************************H1930010
C*****                                                                  H1930020
C*****                          DONSI - (193)                           H1930030
C*****                                                                  H1930040
C*************************************************************************H1930050
C*****  GENERAL PURPOSE                                    ASA REF H1930060
C*****     TESTS INCOMPLETE DO LOOP                      7.1.2.8.1/19H1930070
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C*****  RESTRICTIONS OBSERVED                                          H1930080
C*****  * M1, M2 AND M3 ARE GREATER THAN ZERO                 7.1.2.8/21H1930090
C*****  * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS    7.1.2.8/08H1930100
C*****    THE DO AND IS IN THE SAME PROGRAM UNIT                         H1930110
C*****  * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A          7.1.2.8/07H1930120
C*****    GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR       7.1.2.8/10H1930130
C*****    DO STATEMENT                                                   H1930140
C*****  * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO        7.1.2.8.1/54H1930150
C*****  * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN     7.1.2.8.1/01H1930160
C*****    ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                 H1930170
C*****                                                                   H1930180
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.       H1930190
C*****                                                                   H0075700
C*****  WHEN EXECUTING ONLY SEGMENT 193, THE FOLLOWING STATEMENT         H0075705
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           H0075710
C*****                                                                   H0075715
C=    NUVI = 6                                                           H0075720
C*****                                                                   H0075725
      WRITE (NUVI,1935)                                                  H1930200
1935  FORMAT (1H1,1X,27HDONSI - (193) INCOMPLETE DO//2X,                 H1930210
     - 18HASA REF. - 7.1.2.8//2X,7HRESULTS)                              H1930220
C*****    HEADER FOR SEGMENT 193 WRITTEN                                 H1930230
      KBCVI = 0                                                          H1930240
      DO  1931  JACVI = 1,5,1                                            H1930250
      KBCVI = KBCVI + JACVI                                              H1930260
      IF(KBCVI - 6) 1931, 1930, 1931                                     H1930270
1930  GO TO 1932                                                         H1930280
1931  CONTINUE                                                           H1930290
C*****    ERROR EXIT                                                     H1930300
      WRITE (NUVI,1936)                                                  H1930310
1936  FORMAT (1H0,2X,28H**INCOMPLETE LOOP IN ERROR**)                    H1930320
C*****   INCOMPLETE LOOP TEST IN ERROR                                   H1930330
      GO TO 1937                                                         H1930340
C*****    TEST JACVI FOR VALUE OF 3                        7.1.2.8.1/21H1930350
1932  IF (JACVI - 3) 1933,1934,1933                                      H1930360
C*****    ERROR IN INDUCTION VARIABLE                                    H1930370
1933  WRITE (NUVI,1938)                                                  H1930380
1938  FORMAT (1H0,2X,31H**INDUCTION VARIABLE IN ERROR**)                 H1930390
C*****    INDUCTION VARIABLE SET INCORRECTLY OUTSIDE LOOP                H1930400
      GO TO 1937                                                         H1930410
1934  WRITE (NUVI,1939)                                                  H1930420
1939  FORMAT (1H0,1X,30H**INCOMPLETE LOOP SUCCESSFUL**)                  H1930430
C*****    INCOMPLETE LOOP TEST SUCCESS                                   H1930440
1937  CONTINUE                                                           H1930450
C*****    END OF TEST SEGMENT 193                                        H1930460
C*****  WHEN EXECUTING ONLY SEGMENT 193, THE  STOP  AND  END  CARDS      H1930470
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H1930480
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H1930490
C=    STOP                                                               H1930500
C=    END                                                                H1930510
C*****************************************************************************H1940010
C*****                                                                   H1940020
C*****                          DONSX - (194)                            H1940030
C*****                                                                   H1940040
C*****************************************************************************H1940050
C*****  GENERAL PURPOSE                                        ASA REF H1940060
C*****    TESTS EXTENDED RANGE OF DO LOOP VARIABLE              7.1.2.8.2H1940070
C*****  RESTRICTIONS OBSERVED                                          H1940080
C*****  * M1, M2 AND M3 ARE GREATER THAN ZERO                 7.1.2.8/21H1940090
C*****  * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS    7.1.2.8/08H1940100
C*****    THE DO AND IS IN THE SAME PROGRAM UNIT                         H1940110
C*****  * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A          7.1.2.8/07H1940120
C*****    GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR       7.1.2.8/10H1940130
C*****    DO STATEMENT                                                   H1940140
C*****  * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO        7.1.2.8.2/54H1940150
C*****  * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN     7.1.2.8.2/01H1940160
C*****    ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                 H1940170
C*****  * THE EXTENDED RANGE OF A DO DOES NOT CONTAIN A    7.1.2.8.2/48H1940180
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C*****     DO OF THE SAME PROGRAM UNIT THAT HAS AN                          H1940190
C*****     EXTENDED RANGE.                                                  H1940200
C*****                                                                      H1940210
C*****  S P E C I F I C A T I O N S  SEGMENT 194                            H1940220
C*****                                                                      H0015750
C*****  WHEN EXECUTING ONLY SEGMENT 194, THE SPECIFICATION STATEMENTS       H0015755
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                    H0015760
C*****  IN COLUMNS  1  AND  2  REMOVED.                                     H0015765
C*****                                                                      H0015770
C=     DIMENSION IAC1I(5)                                                   H0015775
C=     INTEGER I3I(2,2,2)                                                   H0015780
C*****                                                                      H0015785
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.          H1940230
C*****                                                                      H0075730
C*****  WHEN EXECUTING ONLY SEGMENT 194, THE FOLLOWING STATEMENT            H0075735
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.              H0075740
C*****                                                                      H0075745
C=     NUVI = 6                                                             H0075750
C*****                                                                      H0075755
       WRITE (NUVI,8944)                                                    H1940240
8944   FORMAT (1H1,1X,31HDONSX - (194) EXTENDED DO RANGE//2X,               H1940250
      120HASA REF. - 7.1.2.8.2//2X,7HRESULTS)                               H1940260
C*****     HEADER FOR SEGMENT 194 WRITTEN                                   H1940270
C*****     EXTENDED RANGE FROM SINGLE LEVEL**********************************H1940280
       MRRVI=1                                                              H1940290
       WRITE (NUVI,8942)MRRVI                                               H1940300
8942   FORMAT (//2X,26HEXTENDED RANGE FROM LEVEL ,I1)                       H1940310
C*****     HEADER FOR SINGLE LEVEL WRITTEN                                  H1940320
       DO  1941  JACVI = 1,4,2                                              H1940330
       IAC1I(JACVI) = JACVI                                                 H1940340
       GO TO 1942                                                           H1940350
1943   IF(JACVI-1) 1945,1941,1945                                           H1940360
1941   CONTINUE                                                             H1940370
       GO TO 1949                                                           H1940380
C*****     TEST JACVI FOR VALUE OF 1                                        H1940390
1942   IF (JACVI - 1) 1946,1943,1946                                        H1940400
C*****     TEST IAC1I(1) AND IAC1I(3) FOR VALUES OF 1 AND 3                 H1940410
1946   IF (IAC1I(1)-1) 1947,7946,1947                                       H1940420
7946   IF (IAC1I(3)-3) 1947,1943,1947                                       H1940430
C*****     ERROR                                                            H1940440
1947   WRITE (NUVI,7947)                                                    H1940450
7947   FORMAT (/2X,24H**TEST INDICATES ERROR**)                             H1940460
C*****     ERROR IN SETTING OF IAC1I ARRAY, LOOP NOT WORKING                H1940470
       GO TO 8940                                                           H1940480
C*****     TEST JACVI FOR VALUE OF 3                                        H1940490
1945   IF (JACVI - 3) 1948,1941,1948                                        H1940500
C*****     ERROR                                                            H1940510
1948    WRITE (NUVI,7947)                                                   H1940520
C*****     ERROR IN SETTING OF INDUCTION VARIABLE                           H1940530
       GO TO 8940                                                           H1940540
1949   WRITE (NUVI,7949)                                                    H1940550
7949   FORMAT (/2X,19H**TEST SUCCESSFUL**)                                  H1940560
C*****     EXTENDED RANGE SUCCESS FOR SINGLE LEVEL                          H1940570
8940   MRRVI=2                                                              H1940580
C*****     EXTENDED RANGE FROM DOUBLE LEVEL**********************************H1940590
       WRITE (NUVI,8942)MRRVI                                               H1940600
C*****     HEADER FOR DOUBLE LEVEL WRITTEN                                  H1940610
       DO 7940  KBCVI = 3,4                                                 H1940620
         DO 7940 JACVI = 1,2,3                                              H1940630
         GO TO 7941                                                         H1940640
8947     IGDVI=  1                                                          H1940650
7940   CONTINUE                                                             H1940660
C*****     TEST JACVI FOR VALUE OF 1                                        H1940670
7941   IF (JACVI-1) 7942,7943,7942                                          H1940680
C*****     ERROR                                                            H1940690
7942   WRITE (NUVI,7947)                                                    H1940700
C*****     DOUBLE LEVEL NESTING IN ERROR                                    H1940710
       GO TO 8946                                                           H1940720
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C*****    TEST KBCVI FOR VALUE OF 3 OR 4                                    H1940730
7943  IF (KBCVI-3) 7942,8947,7944                                           H1940740
7944  IF (KBCVI-4) 7942,7945,7942                                           H1940750
C*****    CORRECT                                                           H1940760
7945  WRITE (NUVI,7949)                                                     H1940770
C*****    DOUBLE LEVEL TEST CORRECT                                         H1940780
8946  CONTINUE                                                              H1940790
      I3I(1,1,1) = 2                                                        H1940800
      I3I(2,1,1) = 4                                                        H1940810
      I3I(1,2,1) = 1                                                        H1940820
      I3I(2,2,1) = 2                                                        H1940830
      I3I(1,1,2)= -2                                                        H1940840
      I3I(2,1,2) = 0                                                        H1940850
      I3I(1,2,2) = -3                                                       H1940860
      I3I(2,2,2) = -2                                                       H1940870
8952  FORMAT(//2X,40HEXTENDED RANGE CONTAINING A DO STATEMENT)              H1940880
      WRITE(NUVI, 8952)                                                     H1940890
      DO 8948 IVI = 1,2                                                     H1940900
      I3I(1,1,IVI) = I3I(1,1,IVI) + 1                                       H1940910
      DO 8948  JVI = 1,2                                                    H1940920
      I3I(1,JVI,IVI) = I3I(1,JVI,IVI) + 2                                   H1940930
      GO TO 8949                                                            H1940940
8951  CONTINUE                                                              H1940950
8948  CONTINUE                                                              H1940960
      WRITE (NUVI, 8950) I3I                                                H1940970
8950  FORMAT(8(/I5) /30H  THE ABOVE 8 VALUES SHOULD BE/                     H1940980
     1 33H  IN DESCENDING ORDER FROM 8 TO 1)                                H1940990
      GO TO 8953                                                            H1941000
8949  DO 8954  KVI = 1,2                                                    H1941010
      I3I(KVI,JVI,IVI) = I3I(KVI,JVI,IVI) + 3                               H1941020
8954  CONTINUE                                                              H1941030
      GO TO 8951                                                            H1941040
8953  CONTINUE                                                              H1941050
C*****    END OF TEST SEGMENT 194                                           H1941060
C*****  WHEN EXECUTING ONLY SEGMENT 194, THE  STOP  AND  END  CARDS         H1941070
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                     H1941080
C*****  IN COLUMNS  1  AND  2  REMOVED.                                     H1941090
C=    STOP                                                                  H1941100
C=    END                                                                   H1941110
C*************************************************************************H1950010
C*****                                                                     H1950020
C*****                          DONML - (195)                              H1950030
C*****                                                                     H1950040
C*************************************************************************H1950050
C*****  GENERAL PURPOSE                                        ASA REF     H1950060
C*****    TESTS TWO INDEPENDENT LOOPS NESTED                 7.1.2.8/28H1950070
C*****    WITHIN LARGER ONE                                              H1950080
C*****  RESTRICTIONS OBSERVED                                            H1950090
C*****  * M1, M2 AND M3 ARE GREATER THAN ZERO                7.1.2.8/21H1950100
C*****  * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS   7.1.2.8/08H1950110
C*****    THE DO AND IS IN THE SAME PROGRAM UNIT                         H1950120
C*****  * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A         7.1.2.8/07H1950130
C*****    GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR       7.1.2.8/10H1950140
C*****    DO STATEMENT                                                   H1950150
C*****  * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO       7.1.2.8.1/54H1950160
C*****  * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN    7.1.2.8.1/01H1950170
C*****    ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                 H1950180
C*****                                                                   H1950190
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.       H1950200
C*****                                                                   H0075760
C*****  WHEN EXECUTING ONLY SEGMENT 195, THE FOLLOWING STATEMENT         H0075765
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.           H0075770
C*****                                                                   H0075775
C=    NUVI = 6                                                          H0075780
C*****                                                                   H0075785
      WRITE (NUVI,1950)                                                  H1950210
1950  FORMAT  (1H1,1X,30HDONML - (195) MULT-LEVEL LOOPS//2X,             H1950220
     - 18HASA REF. - 7.1.2.8//2X,7HRESULTS)                              H1950230
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C*****    HEADER FOR SEGMENT 195 WRITTEN                                H1950240
      IHDVI = 1                                                         H1950250
      IGDVI = 2                                                         H1950260
      IFDVI = 3                                                         H1950270
      DO  1951  JACVI = 1,2                                             H1950280
      IFDVI = IFDVI + JACVI                                             H1950290
        DO 1952 KBCVI = 2,4,1                                           H1950300
          IGDVI = IGDVI + 1                                             H1950310
1952  CONTINUE                                                          H1950320
      IFDVI = IFDVI + IGDVI                                             H1950330
        DO  1953  LCCVI = 6,7,3                                         H1950340
        IHDVI = 1 + IHDVI                                               H1950350
1953    CONTINUE                                                        H1950360
      IFDVI = IFDVI + IHDVI                                             H1950370
1951  CONTINUE                                                          H1950380
C*****    TEST IFDVI FOR VALUE OF 24                                    H1950390
      IF (IFDVI - 24) 1954,1955,1954                                    H1950400
C*****    ERROR                                                         H1950410
1954  WRITE (NUVI,1956)                                                 H1950420
1956  FORMAT    (/2X,24H**TEST INDICATES ERROR**)                       H1950430
C*****    MULTI-LEVEL TEST IN ERROR                                     H1950440
      GO TO 1958                                                        H1950450
C*****    CORRECT                                                       H1950460
1955  WRITE (NUVI,1957)                                                 H1950470
1957  FORMAT    (/2X,19H**TEST SUCCESSFUL**)                            H1950480
C*****    MULTI-LEVEL TEST CORRECT                                      H1950490
1958  CONTINUE                                                          H1950500
C*****    END OF TEST SEGMENT 195                                       H1950510
C*****  WHEN EXECUTING ONLY SEGMENT 195, THE  STOP  AND  END  CARDS     H1950520
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1950530
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1950540
C=    STOP                                                              H1950550
C=    END                                                               H1950560
C*************************************************************************H1960010
C*****                                                                   H1960020
C*****                          DONIO - (196)                            H1960030
C*****                                                                   H1960040
C*************************************************************************H1960050
C*****  GENERAL PURPOSE                                        ASA REF  H1960060
C*****    TO TEST DO LOOPS WHICH HAVE I/O TERMINAL              7.1.2.8  H1960070
C*****    STATEMENTS (FORMATTED READ, FORMATTED WRITE         7.1.3.2.2H1960080
C*****    AND REWIND ARE USED AS TERMINAL STATEMENTS)         7.1.3.2.3H1960090
C*****                                                        7.1.3.3.1H1960100
C*****  RESTRICTIONS OBSERVED                                           H1960110
C*****  * M1, M2 AND M3 ARE GREATER THAN ZERO                 7.1.2.8/21H1960120
C*****  * TERMINAL STATEMENT OF EACH DO PHYSICALLY FOLLOWS    7.1.2.8/08H1960130
C*****    THE DO AND IS IN THE SAME PROGRAM UNIT                        H1960140
C*****  * TERMINAL STATEMENT IS EXECUTABLE BUT NOT A          7.1.2.8/07H1960150
C*****    GO TO, ARITHMETIC IF, RETURN, STOP, PAUSE OR        7.1.2.8/10H1960160
C*****    DO STATEMENT                                                  H1960170
C*****  * M1, M2 AND M3 ARE NOT REDEFINED WITHIN DO       7.1.2.8.2/54H1960180
C*****  * BRANCHES TO TERMINAL STATEMENT FOR MORE THAN    7.1.2.8.2/01H1960190
C*****    ONE DO ARE CONTAINED IN INNERMOST DO OF A NEST                H1960200
C*****                                                                  H1960210
C*****  S P E C I F I C A T I O N S  SEGMENT 196                        H1960220
C*****                                                                  H0015790
C*****  WHEN EXECUTING ONLY SEGMENT 196, THE SPECIFICATION STATEMENTS   H0015795
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                H0015800
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0015805
C*****                                                                  H0015810
C=    DIMENSION IAC1I(5),AC2S(5,6)                                      H0015815
C=    LOGICAL MCAVB,MCBVB,GH2B(1,2)                                     H0015820
C=    DOUBLE PRECISION CC3D(7,2,2),DPAVD,DPBVD                          H0015825
C=    COMPLEX NUMVC,DENVC,LL1C(32)                                      H0015830
C*****                                                                  H0015835
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENTS. NO INPUT TAPE.     H1960230
C*****                                                                  H0075790
C*****  WHEN EXECUTING ONLY SEGMENT 196, THE FOLLOWING STATEMENTS       H0075795
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C*****  NUVI=6 AND INVI=9  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED. H0075800
C*****                                                                  H0075805
C=     NUVI = 6                                                         H0075810
C=     INVI = 9                                                         H0075815
C*****                                                                  H0075820
       WRITE (NUVI,1960)                                                H1960240
1960   FORMAT (1H1,1X,31HDONIO - (196) DO LOOPS WITH I/O/16X,           H1960250
      119HTERMINAL STATEMENTS/ 20H  ASA REF. - 7.1.2.8/ 9H  RESULTS)    H1960260
C*****    HEADER FOR SEGMENT 196 WRITTEN                                H1960270
       KCAVI = 1                                                        H1960280
       CKAVS = 1.0                                                      H1960290
       DPBVD = 1.0D0                                                    H1960300
       DENVC = (1.0,1.0)                                                H1960310
       MCBVB = .TRUE.                                                   H1960320
       IAC1I(2) = 1                                                     H1960330
       AC2S(4,3) = 1.                                                   H1960340
       CC3D(5,1,2) = 1.0D0                                              H1960350
       LL1C(2) = (1.0,1.0)                                              H1960360
       GH2B(1,1) = .TRUE.                                               H1960370
       WRITE (INVI,1965) KCAVI, CKAVS, DPBVD, DENVC, MCBVB, IAC1I(2),   H1960380
      1                  AC2S(4,3), CC3D(5,1,2), LL1C(2), GH2B(1,1)     H1960390
       REWIND INVI                                                      H1960400
       DO  1964  JACVI = 1,3,1                                          H1960410
C*****                                                                  H1960420
       DO 1961 KBCVI = 1,1,1                                            H1960430
1961      READ (INVI,1965) MCAVI,CMAVS,DPAVD,NUMVC,MCAVB,IAC1I(KBCVI),  H1960440
      1         AC2S(5,4), CC3D(6,1,2), LL1C(3), GH2B(KBCVI,2)         H1960450
C*****                                                                  H1960460
          DO 1962  LCCVI = 1,2,1                                        H1960470
1962      REWIND INVI                                                   H1960480
C*****                                                                  H1960490
          DO 1963  MDCVI = 1,1,1                                        H1960500
1963      WRITE (NUVI,1966) MCAVI, IAC1I(1), CMAVS, AC2S(5,4), DPAVD,   H1960510
      1                       CC3D(6,1,2), NUMVC, LL1C(3), MCAVB,       H1960520
      2                     GH2B(MDCVI, MDCVI+1)                        H1960530
1964   CONTINUE                                                         H1960540
       WRITE (NUVI,1967)                                                H1960550
C*****    FORMAT STATEMENTS FOR THIS SEGMENT                            H1960560
1965   FORMAT (2(I5,F5.1,D8.1,2(F5.1),L5))                              H1960570
1966   FORMAT ( // 2(I10/),2(F11.1/),2(D15.1/),2(F5.1,F6.1/),2(L10/))   H1960580
1967   FORMAT   (//30H  THIS TEST IS SUCCESSFUL IF 3/38H  IDENTICAL GROUPH1960590
      1S OF OUTPUT HAVE BEEN/12H  GENERATED.)                           H1960600
C*****    END OF SEGMENT 196                                            H1960610
C*****  WHEN EXECUTING ONLY SEGMENT 196, THE  STOP  AND  END  CARDS     H1960620
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1960630
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1960640
C=     STOP                                                             H1960650
C=     END                                                              H1960660
C*************************************************************************H1970010
C*****                                                                  H1970020
C*****                          MORDO - (197)                           H1970030
C*****                                                                  H1970040
C*************************************************************************H1970050
C*****  GENERAL PURPOSE                                        ASA REF H1970060
C*****    A MORE COMPLICATED SEGMENT TESTING THE DO STATEMENT    7.1.2.8H1970070
C*****                                                                  H1970080
C*****  S P E C I F I C A T I O N S  SEGMENT 197                        H1970090
C*****                                                                  H0015840
C*****  WHEN EXECUTING ONLY SEGMENT 197  THE SPECIFICATION STATEMENTS   H0015845
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H0015850
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0015855
C*****                                                                  H0015860
C=     DIMENSION  IAC1I(5), MCA1I(5)                                    H0015865
C*****                                                                  H0015870
C*****  WHEN EXECUTING ONLY SEGMENT 197, THE SEGMENT 005, WHICH         H1970100
C*****  CONTAINS THE STATEMENT FUNCTIONS BEING USED HERE, MUST BE       H1970110
C*****  INSERTED AFTER THE SPECIFICATION STATEMENTS OF SEGMENT 197.     H1970120
C*****                                                                  H1970130
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C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENTS. NO INPUT TAPE.      H1970140
C*****                                                                   H0075825
C*****  WHEN EXECUTING ONLY SEGMENT 197, THE FOLLOWING STATEMENTS        H0075830
C*****  NUVI=6 AND INVI=9  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.  H0075835
C*****                                                                   H0075840
C=     NUVI = 6                                                          H0075845
C=     INVI = 9                                                          H0075850
C*****                                                                   H0075855
      WRITE (NUVI,1970)                                                  H1970150
1970  FORMAT (1H1, 1X,37HMORDO - (197) A MORE COMPLICATED SEG./16X,      H1970160
     1        16HOF DO STATEMENTS//                                      H1970170
     2 35H  ASA REFS - 7.1.2.8 AND 7.1.2.8.1 // 9H  RESULTS )           H1970180
C*****    HEADER FOR SEGMENT 197 WRITTEN                                 H1970190
C*****    TEST OF DO WITH STATEMENT FUNCTIONS AND INTRINSIC FUNCTIONS    H1970200
C*****    REFERENCED WITHIN ITS RANGE. TO BE RUN WITH SEG. 005 AND 412   H1970210
      ASSIGN 9190 TO MVI                                                 H1970220
      MCBVI = 0                                                          H1970230
      MCHVI = 1971                                                       H1970240
      DO 1971 MCAVI = 4,8,4                                              H1970250
      CMAVS = CMAFS(1.0, FLOAT(MCAVI))                                   H1970260
1971  MCBVI = MCBVI + MCAFI(MCAVI,IFIX(CMAVS) - (MCAVI+2))               H1970270
      IF (MCBVI - 2) 9966, 9190, 9966                                    H1970280
9190  MCHVI = 1973                                                       H1970290
C*****    TEST OF DO WITH CALL STATEMENTS REFERENCED WITHIN ITS RANGE    H1970300
      IVI = 0                                                            H1970310
      ASSIGN 9968 TO MVI                                                 H1970320
      DO 1973 MCAVI = 1,3                                                H1970330
1973  CALL  MDO( MCAVI, IVI)                                             H1970340
      IF(IVI - 6) 9966, 9968, 9966                                       H1970350
C*****    TEST OF DO WITH THE FOLLOWING FEATURES COMBINED -              H1970360
C*****    1.  AN EXIT FROM THE RANGE OF A DO BY THE EXECUTION OF A       H1970370
C*****        GO-TO STATEMENT, THE CONTROL VARIABLE OF THE DO IS         H1970380
C*****        DEFINED                                  7.1.2.8.1/19-23   H1970390
C*****    2.  A GO TO STATEMENT CAUSES CONTROL TO PASS FROM AN           H1970400
C*****        INNER DO TO THE OUTER DO (WITHIN THE NESTED RANGE)         H1970410
9968  MCHVI = 1976                                                       H1970420
      ASSIGN 9191 TO MVI                                                 H1970430
      MCBVI = 0                                                          H1970440
      DO 1976 MCAVI = 1,1,1                                              H1970450
9192  MCBVI = MCBVI + 1                                                  H1970460
      DO 1975 MCCVI = 1,3,1                                              H1970470
      MCBVI = MCBVI + 1                                                  H1970480
      IF(MCBVI - 4) 9197, 9192, 1975                                     H1970490
9197  GO TO (1975, 1975, 9966), MCCVI                                    H1970500
1975  CONTINUE                                                           H1970510
1976  CONTINUE                                                           H1970520
      IF (MCBVI - 8) 9966, 9191, 9966                                    H1970530
C*****    TEST THAT THE STATEMENT LABEL OF THE TERMINAL STATEMENT         H1970540
C*****    OF MORE THAN ONE DO CAN BE USED IN ANY GO TO OR ARITHMETIC     H1970550
C*****    IF STATEMENT THAT OCCURS IN THE RANGE OF THE MOST DEEPLY       H1970560
C*****    CONTAINED DO WITH THAT TERMINAL STATEMENT.    7.1.2.8.2/1-6    H1970570
C*****    ALSO THE CONTROL VARIABLE IS DEFINED WHEN EXIT IS MADE BY THE  H1970580
C*****    EXECUTION OF AN ARITHMETIC IF STATEMENT.                       H1970590
9191  ASSIGN 9194 TO MVI                                                 H1970600
      MCHVI = 1977                                                       H1970610
      MCEVI = -24                                                        H1970620
      DO 1977 MCAVI = 1,2                                                H1970630
      MCEVI = MCEVI + 1                                                  H1970640
         DO 1977 MCBVI = 1,2                                             H1970650
         MCEVI = MCEVI + 1                                               H1970660
            DO 1977 MCCVI = 1,5,1                                        H1970670
            MCEVI = MCEVI + 1                                            H1970680
            IF(MCEVI )     1977, 1977, 1978                              H1970690
1977  CONTINUE                                                           H1970700
C*****  ERROR IF LOOP TERMINATES THRU CONTINUE                           H1970710
      GO TO 9966                                                         H1970720
C*****  CONTROL VARIABLE DEFINED ON FIRST LEVEL ON ARITH. IF             H1970730
1978  MCEVI = MCAVI + MCBVI + MCCVI                                      H1970740
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      MCHVI = 1978                                                      H1970750
      IF(MCEVI -8) 9966,9194,9966                                       H1970760
9194  MCHVI = 1974                                                      H1970770
      MCEVI = 0                                                         H1970780
      ASSIGN 9961 TO MVI                                                H1970790
      00 1974 MCAVI = 1,2                                               H1970800
        00 1974 MCBVI = 1,2,1                                           H1970810
          DO 1974 MCCVI = 4,5,1                                         H1970820
          DO 1974 MCDVI = 2,3                                           H1970830
          GO TO 9193                                                    H1970840
9195      GO TO 1974                                                    H1970850
9193      MCEVI = MCAVI + MCBVI + MCCVI + MCDVI + MCEVI                 H1970860
            GO TO 9195                                                  H1970870
1974            CONTINUE                                              H1970880
      IF(MCEVI - 160) 9966, 9961, 9966                                  H1970890
C*****    TEST OF 00 WITH I/O STATEMENTS REFERENCED WITHIN ITS RANGE.   H1970900
C*****    REWIND, UNFORMATTED READ AND WRITE ARE REFERENCED. THE        H1970910
C*****    FOLLOWING 3 DOS MUST BE KEPT TOGETHER FOR SELF-CHECKING       H1970920
C*****    PURPOSES                                                      H1970930
9961  MCHVI = 1972                                                      H1970940
      ASSIGN 9196 TO MVI                                                H1970950
      REWIND INVI                                                       H1970960
      00 9963 MCAVI = 1,4                                               H1970970
      MCA1I(MCAVI) = MCAVI                                              H1970980
      WRITE ( INVI) (MCA1I(MCBVI), MCBVI = 1,MCAVI, 1)                  H1970990
9963  CONTINUE                                                          H1971000
      DO 9964 MCCVI = 1,4                                               H1971010
9964  REWIND INVI                                                       H1971020
      00 1972 MCDVI = 1,4                                               H1971030
      READ (INVI) (IAC1I(MCEVI),MCEVI = 1,MCDVI)                        H1971040
      00 1972 MCFVI = 1, MCDVI                                          H1971050
      MCGVI = IAC1I(MCFVI) - MCA1I(MCFVI)                               H1971060
      IF (MCGVI) 9966, 1972, 9966                                       H1971070
1972  CONTINUE                                                          H1971080
9196  WRITE(NUVI, 9969)                                                 H1971090
      GO TO 9198                                                        H1971100
C*****    ERROR MESSAGES IF 00 STATEMENT IS EXECUTED IN ERROR.          H1971110
9966  WRITE (NUVI,9967) MCHVI                                           H1971120
9967  FORMAT (// 36H  DO RANGE ENDING AT STATEMENT LABEL,I5,            H1971130
     114H  IS IN ERROR.)                                                H1971140
9969  FORMAT(// 35H  THIS SEGMENT SUCCESSFULLY TESTED /                 H1971150
     222H  IF NO ERROR MESSAGES)                                        H1971160
      GO TO MVI,(9190,9968,9191,9194,9961,9196)                         H1971170
9198  REWIND INVI                                                       H1971180
C*****    END OF TEST SEGMENT 197                                       H1971190
C*****  WHEN EXECUTING ONLY SEGMENT 197, THE  STOP  AND  END  CARDS     H1971200
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H1971210
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H1971220
C=    STOP                                                              H1971230
C=    END                                                               H1971240
C*************************************************************************H2000010
C*****                                                                   H2000020
C*****                          SUBR1 - (200)                            H2000030
C*****                                                                   H2000040
C*************************************************************************H2000050
C*****  GENERAL PURPOSE                                        ASA REF.H2000060
C*****    TO TEST SUBROUTINE SUBPROGRAM WITHOUT AN ARGUMENT LIST 8.4.1.1H2000070
C*****  GENERAL COMMENTS                                                 H2000080
C*****    IT IS TO BE RUN WITH SEGMENT 410                               H2000090
C*****  RESTRICTIONS OBSERVED                                            H2000100
C*****    SYMBOLIC NAME OF A SUBROUTINE MAY NOT APPEAR IN ANY 8.4.1.1/56H2000110
C*****    STATEMENT IN THIS SUBROUTINE EXCEPT IN THE                     H2000120
C*****    SUBROUTINE STATEMENT ITSELF                                    H2000130
C*****  * SYMBOLIC NAMES OF DUMMY ARGUMENTS MAY NOT APPEAR    8.4.1.1/39H2000140
C*****    IN EQUIVALENCE OR COMMON STATEMENTS IN THE SUBPROGRAM           H2000150
C*****  * SUBROUTINES MAY NOT CONTAIN A FUNCTION STATEMENT,   8.4.1.1/45H2000160
C*****    ANOTHER SUBROUTINE STATEMENT, OR ANY STATEMENT THAT             H2000170
C*****    DIRECTLY OR INDIRECTLY REFERENCES THE SUBROUTINE                H2000180
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C*****    BEING OEFINED                                                  H2000190
C*****  * AT LEAST ONE RETURN STATEMENT MUST BE IN A SUBROUTINE          H2000200
C*****                                                  8.4.1.1/49H2000210
C*****  S P E C I F I C A T I O N S  SEGMENT 200                         H2000220
C*****                                                                   H0015875
C*****  WHEN EXECUTING ONLY SEGMENT 200, THE SPECIFICATION STATEMENTS    H0015880
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H0015885
C*****  IN COLUMNS  1  ANO  2  REMOVED.                                  H0015890
C=     COMMON  AXVS, CXVS, IXVI, IAX1I(4)                               H0015895
C*****                                                                   H0015900
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT. NO INPUT TAPE.       H2000230
C*****  WHEN EXECUTING ONLY SEGMENT 200, THE FOLLOWING STATEMENTS        H0075860
C*****  NUVI=6 AND INVI=9 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVEO.   H0075865
C*****                                                                   H0075870
C=     NUVI = 6                                                          H0075875
C=     INVI = 9                                                          H0075880
       WRITE(NUVI, 0200)                                                 H2000240
200    FORMAT(39H1 SUBR1 - (200)   SUBROUTINE SUBPROGRAM /15X,           H2000250
      124HWITHOUT AN ARGUMENT LIST //18H  ASA REF. - 8.4.1//9H  RESULTS) H2000260
       IXVI = NUVI                                                       H2000270
       IAX1I(1) = INVI                                                   H2000280
       CALL SUBRQ                                                        H2000290
       CONTINUE                                                          H2000300
C*****    ENO OF SEGMENT 200                                             H2000310
C*****  WHEN EXECUTING ONLY SEGMENT 200, THE STOP ANO ENO CARDS          H2000320
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE C=                   H2000330
C*****  IN COLUMNS  1  AND  2  REMOVEO.                                  H2000340
C=     STOP                                                              H2000350
C=     END                                                               H2000360
       STOP                                                              H9999995
       END                                                               H9999999
C*****************************************************************************H4100010
C*****                                                                   H4100020
C*****                          SUBRQ - (410)                            H4100030
C*****                                                                   H4100040
C*****************************************************************************H4100050
C*****  THIS SEGMENT TESTS THAT A VARIETY OF FORTRAN STATEMENTS          H4100060
C*****  CAN BE USEO IN A SUBROUTINE.  IT IS TO BE RUN WITH SEGMENT 200   H4100070
       SUBROUTINE SUBRQ                                                  H4100080
8867   FORMAT (//36H  DO RANGE ENDING AT STATEMENT LABEL,I5,14H  IS IN ERH4100090
      1ROR.)                                                             H4100100
       DIMENSION KCA1I(5), KAC1I(5)                                      H4100110
       COMMON  BXVS, DXVS, NXVI, IXVI                                    H4100120
C*****    OEFINE ARITHMETIC STATEMENT FUNCTION                           H4100130
       CKAFS(CEWVS,CFWVS) = CEWVS*2. + CFWVS                             H4100140
8868   FORMAT (//35H  THIS SEGMENT SUCCESSFULLY TESTED /                 H4100150
      1 23H  IF NO ERROR MESSAGES.)                                      H4100160
       KCAFI(KEWVI,KFWVI) = KEWVI**KFWVI                                 H4100170
C*****    TEST OF OO WITH STATEMENT FUNCTIONS                            H4100180
       KCHVI = 4101                                                      H4100190
       ASSIGN 4102 TO MVI                                                H4100200
       KCBVI = 0                                                         H4100210
       DO 4101 KCAVI = 4,8,4                                             H4100220
       CKAVS = CKAFS(1.0, FLOAT(KCAVI))                                  H4100230
4101   KCBVI = KCBVI + KCAFI(KCAVI,IFIX(CKAVS) - (KCAVI + 2))            H4100240
       IF(KCBVI - 2) 8866, 4102, 8866                                    H4100250
C*****    TEST OF DO WITH THE FOLLOWING FEATURES COMBINED -              H4100260
C*****    1.  AN EXIT FROM THE RANGE OF A DO BY THE EXECUTION OF A       H4100270
C*****        GO-TO STATEMENT, THE CONTROL VARIABLE OF THE DO IS         H4100280
C*****        DEFINED                                                    H4100290
C*****    2.  A GO TO STATEMENT CAUSES CONTROL TO PASS FROM AN           H4100300
C*****        INNER OO TO THE OUTER OO (WITHIN THE NESTED RANGE)         H4100310
4102   KCHVI = 4106                                                      H4100320
       ASSIGN 8870 TO MVI                                                H4100330
       KCBVI = 0                                                         H4100340
       OO 4106 KCAVI = 1,1,1                                             H4100350
8872   KCBVI = KCBVI + 1                                                 H4100360
       OO 4105 KCCVI = 1,3,1                                             H4100370
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      KCBVI = KCBVI + 1                                                 H4100380
      IF (KCBVI - 4) 8873, 8872, 4105                                   H4100390
8873  GO TO (4105,4105,8866), KCCVI                                     H4100400
4105  CONTINUE                                                          H4100410
4106   CONTINUE                                                         H4100420
      IF(KCBVI - 8) 8866, 8870, 8866                                    H4100430
C*****    TEST THAT THE STATEMENT LABEL OF THE TERMINAL STATEMENT       H4100440
C*****    OF MORE THAN ONE DO CAN BE USED IN ANY GO TO OR ARITHMETIC    H4100450
C*****    IF STATEMENT THAT OCCURS IN THE RANGE OF THE MOST DEEPLY      H4100460
C*****    CONTAINED DO WITH THAT TERMINAL STATEMENT                     H4100470
8870  ASSIGN 8876 TO MVI                                                H4100480
      KCHVI = 4107                                                      H4100490
      KCEVI = -24                                                       H4100500
      DO 4107 KCAVI = 1,2                                               H4100510
      KCEVI = KCEVI + 1                                                 H4100520
         DO 4107 KCBVI = 1,2                                            H4100530
         KCEVI = KCEVI + 1                                              H4100540
            DO 4107 KCCVI = 1,5,1                                       H4100550
            KCEVI = KCEVI + 1                                           H4100560
            IF(KCEVI )     4107,4107,4104                               H4100570
4107  CONTINUE                                                          H4100580
C*****ERROR IF LOOP TERMINATES THRU CONTINUE                            H4100590
      GO TO 8866                                                        H4100600
C*****CONTROL VARIABLE DEFINED ON FIRST LEVEL ON ARITH. IF              H4100610
4104  KCEVI = KCAVI + KCBVI + KCCVI                                     H4100620
      KCHVI = 4104                                                      H4100630
      IF(KCEVI - 8) 8866,8876,8866                                      H4100640
8876  KCHVI = 4103                                                      H4100650
      KCEVI = 0                                                         H4100660
      ASSIGN 8871 TO MVI                                                H4100670
      DO 4103 KCAVI =1,2                                                H4100680
        DO 4103 KCBVI = 1,2,1                                           H4100690
          DO 4103 KCCVI = 4,5,1                                         H4100700
            DO 4103 KCDVI = 2,3                                         H4100710
              GO TO 8878                                                H4100720
8877          GO TO 4103                                                H4100730
8878          KCEVI = KCAVI + KCBVI + KCCVI + KCDVI + KCEVI             H4100740
              GO TO 8877                                                H4100750
4103          CONTINUE                                                  H4100760
      IF(KCEVI - 160)8866,8871,8866                                     H4100770
C*****    TEST OF DO WITH I/O STATEMENTS                                H4100780
8871  ASSIGN 8860 TO MVI                                                H4100790
      KCHVI = 4108                                                      H4100800
      REWIND IXVI                                                       H4100810
      DO 8863 KCAVI = 1,4                                               H4100820
      KCA1I(KCAVI) = KCAVI                                              H4100830
      WRITE(IXVI)(KCA1I(KCBVI),KCBVI = 1,KCAVI,1)                       H4100840
8863  CONTINUE                                                          H4100850
      DO 8864 KCCVI =1,4                                                H4100860
8864  REWIND IXVI                                                       H4100870
      DO 4108  KCDVI = 1,4                                              H4100880
      READ(IXVI)(KAC1I(KCEVI),KCEVI = 1,KCDVI    )                      H4100890
      DO 4108 KCFVI = 1, KCDVI                                          H4100900
      KCGVI = KAC1I(KCFVI)-KCA1I(KCFVI)                                 H4100910
      IF(KCGVI) 8866,4108,8866                                          H4100920
4108  CONTINUE                                                          H4100930
8860  WRITE(NXVI,8868)                                                  H4100940
      GO TO 8869                                                        H4100950
8866  WRITE(NXVI,8867) KCHVI                                            H4100960
      GO TO MVI,(8860,4102,8870,8871,8876)                              H4100970
8869  REWIND IXVI                                                       H4100980
      RETURN                                                            H4100990
C*****    END OF TEST SEGMENT 410                                       H4101000
      END                                                               H4101010
C*****************************************************************************H4120010
C*****                                                                 H4120020
C*****                          MDQ    - (412)                         H4120030
C*****                                                                 H4120040
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C*******************************************************************************H4120050
C*****  GENERAL PURPOSE                                                  ASA REF H4120060
C*****    THIS SUBROUTINE IS USED WITH SEGMENT 197 TO                            H4120070
C*****    SHOW THAT SUBROUTINES MAY BE CALLED FROM DO LOOPS                      H4120080
      SUBROUTINE MDQ(MWVI,IWVI)                                                  H4120090
      IWVI = MWVI + IWVI                                                         H4120100
      RETURN                                                                     H4120110
C*****    END OF TEST SEGMENT 412                                                H4120120
      END                                                                        H4120130
C*******************************************************************************H4190010
C*****                                                                          H4190020
C*****                              BLAKD - (419)                               H4190030
C*****                                                                          H4190040
C*******************************************************************************H4190050
C*****  GENERAL PURPOSE                                                         H4190060
C*****    THIS SEGMENT CONTAINS THE FIRST OF THREE BLOCK DATA SUBPROGRAMS       H4190070
C*****    TO BE RUN WITH SEGMENT 179                                            H4190080
C*****    THESE SEGMENTS USE ALL THE PERMISSIBLE STATEMENTS IN A                H4190090
C*****    BLOCK DATA SUBPROGRAM. THE DATA STATEMENTS CONSIST OF ALL             H4190100
C*****    TYPES OF VARIABLES AND ARRAYS. A HOLLERITH CONSTANT IS                H4190110
C*****  ASSIGNED TO INTEGER , REAL, AND LOGICAL                                 H4190120
      BLOCK DATA                                                                 H4190130
      DOUBLE PRECISION DXVD, DX1D, DX2D                                          H4190140
      COMMON /BLK1/JXVI, JAX1I(2), JAX2I(3,3)                                    H4190150
     A       /BLK2/ DXVS, DX1S(2), DX2S(2,2)                                     H4190160
     B       /BLK3/ DXVD, DX1D(2), DX2D(2,2)                                     H4190170
      INTEGER JXVI                                                               H4190180
      REAL DXVS                                                                  H4190190
      DATA JXVI, JAX1I(1), JAX2I(1,2), DXVS, DX1S(2)                             H4190200
     A    ,DX2S(1,2), DXVD, DX1D(1), DX2D(1,2)/ 3 * 1                           H4190210
     B    ,3 * 2.0,3*4.0D0/,  JAX2I(1,3),DX2S(2,1)/2HHP,2HHP/                   H4190220
C*****   END OF TEST SEGMENT 419                                                H4190230
      END                                                                        H4190240
C*******************************************************************************H4290010
C*****                                                                          H4290020
C*****                              BLBKD - (429)                               H4290030
C*****                                                                          H4290040
C*******************************************************************************H4290050
C*****    TO BE RUN WITH SEGMENT 179                                            H4290060
C*****    THIS SEGMENT CONTAINS THE 2ND OF THREE BLOCK DATA SUBPROGRAMS         H4290070
C*****    TO BE RUN WITH SEGMENT 179                                            H4290080
      BLOCK DATA                                                                 H4290090
      COMPLEX DXVC, DX1C, DX2C                                                   H4290100
      COMMON /BLK4/ DXVC,DX1C(2), DX2C(2,2)                                      H4290110
     C       /BLK5/DXVB, DX1B(2), DX2B(2,2)                                      H4290120
      LOGICAL DXVB, DX1B, DX2B                                                   H4290130
      DATA DXVC, DX1C(1), DX2C(1,2),DXVB, DX1B(1),DX2B(1,2)/                     H4290140
     D     3 * (3.,4.), 3 *.FALSE./                                              H4290150
C*****   END OF TEST SEGMENT 429                                                H4290160
      END                                                                        H4290170
C*******************************************************************************H4390010
C*****                                                                          H4390020
C*****                              BLCKD - (439)                               H4390030
C*****                                                                          H4390040
C*******************************************************************************H4390050
C*****    THIS SEGMENT CONTAINS THE THIRD OF THREE BLOCK DATA SUBPROGRAMS       H4390060
C*****    TO BE RUN WITH SEGMENT 179                                            H4390070
      BLOCK DATA                                                                 H4390080
      COMMON /BLK6/JAX3I(2,2,2),DX3S(2,2,2),DX3D(2,2,2)                          H4390090
     E       ,DZ3C(2,2,2), DX3B(2,2,2)                                           H4390100
      DOUBLE PRECISION DX3D                                                      H4390110
      DIMENSION CY3C(2,2,2)                                                      H4390120
      COMPLEX DZ3C,CY3C                                                          H4390130
      EQUIVALENCE (DZ3C(1,1,1), CY3C(1,1,1))                                     H4390140
      LOGICAL DX3B                                                               H4390150
      DATA JAX3I(1,1,2),DX3S(1,1,2),DX3D(1,1,2),CY3C(1,1,2),DX3B(1,1,2)/         H4390160
     F 1, 2.0, 4.0D0, (3.,4.),.FALSE./             ,DX3B(2,2,2)/                 H4390170
     G 2HHP/                                                                     H4390180
```

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C*****   END OF TEST SEGMENT 439                                                H4390190
      END                                                                       H4390200
 SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
   DO NOT READ OR WRITE RECORD  2  .  DOUBLE SPACE ON OUTPUT.    ID 2
 OPERATING SYSTEM VERSION
   DO NOT READ OR WRITE RECORD  4  .  DOUBLE SPACE ON OUTPUT     ID 4
 DATE, INSTALLATION NAME
       DO NOT READ OR WRITE RECORD 6  DOUBLE SPACE ON OUTPUT     ID 6
C*****   PART13    ************************************************************H0006000
C*****                                                                          H0006005
C*****   ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS                           H0006010
C*****                                                                          H0006015
C*****   PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3            H0006020
C*****                                                                          H0006025
C*****   JUNE 1974                                                              H0006030
C*****                                                                          H0006035
C*****   PART 13 OF 14 PARTS                                                    H0006040
C*****                                                                          H0006045
C*****   SEGMENTS INCLUDED                                                      H0006050
C*****                                                                          H0006055
C*****     LOGIF - 300  LOGICAL IF STATEMENTS                                   H0006060
C*****                                                                          H0006065
C*****       SMCQ  - 411  SUBROUTINE                                            H0006070
C*****                                                                          H0006075
C*****     BARIF - 301  ARITHMETIC IF STATEMENTS                                H0006080
C*****                                                                          H0006085
C*****     FARIF - 302  ARITHMETIC IF STATEMENTS                                H0006090
C*****                                                                          H0006095
C*****     IOFMT - 310  FORMATTED READ, WRITE                                   H0006100
C*****                                                                          H0006105
C*****     RDFMT - 312  FORMATS IN ARRAYS                                       H0006110
C*****                                                                          H0006115
C*****      FMTQ - 462  SUBROUTINE                                              H0006120
C*****                                                                          H0006125
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN SEGMENTS          H0016000
C*****  300, 301, 302, 310, 312  ARE RUN AS ONE MAIN PROGRAM.                   H0016005
C*****                                                                          H0016010
      REAL MVS                                                                  H0016015
      DIMENSION L1I(10)                                                         H0016020
      DIMENSION IAC2I(2,7),ZU1S(13),ZU3S(3,2,2),ZU2S(4,2),ZT1S(4)               H0016025
      DIMENSION A1S(5 ),A2S(2,2),A3S(3,3,3),YER1S(7),EP1S(33)                   H0016030
      DIMENSION IAC1I(5),MCA1I(5),AC1S(25),AC2S(5,6),CMA1S(5)                   H0016035
      INTEGER AVI,IU2I(4,2),IT3I(4,2,2),IU3I(2,3,3), MCA3I(2,3,3)               H0016040
      LOGICAL MCAVB, MCBVB, MCA1B(7), AVB, BVB, CVB, GG1B(2), A1B(2)            H0016045
      COMPLEX CHAVC,CHBVC                                                       H0016050
      DOUBLE PRECISION MCAVD, MCBVD, MCCVD, A1D(4), A2D(2,2), A3D(2,2,2)H0016055
     1       ,DPAVD, DPBVD,DPCVD,DPEVD,DPFVD,DPHVD,DPDVD,AAAVD                  H0016060
C*****                                                                          H0016065
C*****  END OF SPECIFICATIONS FOR SEGMENTS 300, 301, 302, 310, 312              H0016070
C*****************************************************************************H3000010
C*****                                                                          H3000020
C*****                          LOGIF - (300)                                   H3000030
C*****                                                                          H3000040
C*****************************************************************************H3000050
C*****  GENERAL PURPOSE                                              ASA REF  H3000060
C*****    TEST LOGICAL IF STATEMENT                                   7.1.2.3H3000070
C*****  GENERAL COMMENT                                                        H3000080
C*****    ASSIGNED GO TO,INTRINSIC FUNCTION,ARITHMETIC IF,CALL,                H3000090
C*****    COMPUTED GO TO AND I/O STATEMENTS ASSUMED WORKING.                   H3000100
C*****                                                                         H3000110
C*****  S P E C I F I C A T I O N S  SEGMENT 300                               H3000120
C*****                                                                         H0016075
C*****  WHEN EXECUTING ONLY SEGMENT 300, REMOVE THE PRECEDING                  H0016080
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS, WHICH APPEAR            H0016085
C*****  AS COMMENT CARDS MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.         H0016090
C*****                                                                         H0016095
C=    LOGICAL MCAVB,MCBVB,MCA1B(7)                                             H0016100
C=    DOUBLE PRECISION DPAVD, DPBVD,DPCVD,DPDVD,DPEVD,DPFVD                    H0016105
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C*****                                                                  H0016110
C*****  I N P U T - O U T P U T  T A P E ASSIGNMENT STATEMENTS.         H3000130
      IRVI = 5                                                          H0076000
      NUVI = 6                                                          H0076005
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                        H0076010
      WRITE(NUVI,0071)                                                  H0076015
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//            H0076020
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                  H0076025
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                     H0076030
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                  H0076035
     5 23H  VERSION 3     PART 13///)                                   H0076040
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER       H0076045
C       PREPARED BY USER                                                H0076050
C       READ, NO LIST                                                   H0076055
C       PREPARED BY USER                                                H0076060
C       READ, NO LIST                                                   H0076065
C       PREPARED BY USER                                                H0076070
C       READ, NO LIST                                                   H0076075
      READ(IRVI,0070)                                                   H0076080
      READ(IRVI,0072)                                                   H0076085
      READ(IRVI,0073)                                                   H0076090
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966        /)             H0076095
0072  FORMAT(40H   TEST PROGRAMS                         /)             H0076100
0073  FORMAT(40H   FORTRAN  COMPILER                     /)             H0076105
      WRITE(NUVI,0070)                                                  H0076110
      WRITE(NUVI,0072)                                                  H0076115
      WRITE(NUVI,0073)                                                  H0076120
      WRITE (NUVI,3000)                                                 H3000140
3000  FORMAT (1H1, 1X,34HLOGIF - (300) LOGICAL IF STATEMENT//           H3000150
     120H  ASA REF. - 7.1.2.3//10H  RESULTS //                          H3000160
     2/37H  TEST EXPLICITLY WRITTEN SIGNED ZERO/2X)                     H3000170
C*****    HEADER FOR SEGMENT 300 WRITTEN                                H3000180
      MACVI = 0                                                         H3000190
      MCAVB = .TRUE.                                                    H3000200
      MCBVB = .FALSE.                                                   H3000210
      MCA1B(1) = .TRUE.                                                 H3000220
      MCA1B(2) = .FALSE.                                                H3000230
C*****    TEST THAT MINUS ZERO AND PLUS ZERO ARE TREATED          4.2/11H3000240
C*****    AS EQUAL VALUES                                               H3000250
      IVI = -8                                                          H3000260
      IIVI = -8                                                         H3000270
      JVI = +0                                                          H3000280
      JJVI = -0                                                         H3000290
      KVI = 8                                                           H3000300
      KKVI = 8                                                          H3000310
      AVS = -0.5                                                        H3000320
      AAVS = -0.5                                                       H3000330
      BVS  = +0.0                                                       H3000340
      BBVS = -0.0                                                       H3000350
      CVS = 0.5                                                         H3000360
      CCVS = 0.5                                                        H3000370
      DPAVD = -0.5D0                                                    H3000380
      DPBVD = -0.5D0                                                    H3000390
      DPCVD = +0.0D0                                                    H3000400
      DPDVD = -0.0D0                                                    H3000410
      DPEVD = 0.5D0                                                     H3000420
      DPFVD = 0.5D0                                                     H3000430
C*****  TEST FOR EXPLICITLY WRITTEN -0 EQUAL TO +0                      H3000440
      IF((JVI) .EQ. (JJVI))MACVI = MACVI + 1                            H3000450
      IF((JJVI) .EQ. (JVI)) MACVI = MACVI + 1                           H3000460
      IF((+0) .EQ. (-0)) MACVI = MACVI + 1                              H3000470
      IF((-0) .EQ. (+0)) MACVI = MACVI + 1                              H3000480
      IF (MACVI - 4) 9951, 9954, 9951                                   H3000490
9951  WRITE (NUVI, 9953)                                                H3000500
      GO TO 9955                                                        H3000510
9952  FORMAT(14H  +0 EQUALS -0)                                         H3000520
9953  FORMAT(17H  +0 NOT EQUAL -0)                                      H3000530
9954  WRITE (NUVI, 9952)                                                H3000540
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9955  MACVI = 0                                                        H3000550
C*****  TEST EXPLICITLY WRITTEN +0.0 EQUALS -0.0                       H3000560
      IF ((BVS) .EQ. (BBVS)) MACVI = MACVI + 1                         H3000570
      IF ((BBVS) .EQ. (BVS)) MACVI = MACVI + 1                         H3000580
      IF ((+0.0) .EQ. (-0.0)) MACVI = MACVI + 1                        H3000590
      IF ((-0.0) .EQ. ( 0.0)) MACVI = MACVI + 1                        H3000600
      IF (MACVI - 4) 9944, 9947, 9944                                  H3000610
9944  WRITE (NUVI, 9946)                                               H3000620
      GO TO 9948                                                       H3000630
9945  FORMAT (18H  +0.0 EQUALS -0.0)                                   H3000640
9946  FORMAT (21H  +0.0 NOT EQUAL -0.0)                                H3000650
9947  WRITE (NUVI, 9945)                                               H3000660
C*****  TEST EXPLICITLY WRITTEN +0.0D0 EQUALS -0.0D0                   H3000670
9948  MACVI = 0                                                        H3000680
      IF ((DPCVD) .EQ. (DPDVD)) MACVI = MACVI +1                       H3000690
      IF ((DPDVD).EQ. (DPCVD)) MACVI = MACVI + 1                       H3000700
C*****                                                                 H3000710
      IF ((+0.0D0) .EQ. (-0.0D0)) MACVI = MACVI + 1                    H3000720
      IF ((-0.0D0) .EQ. (0.0D0)) MACVI = MACVI + 1                     H3000730
      IF (MACVI - 4) 9949, 9957, 9949                                  H3000740
9949  WRITE (NUVI, 9960)                                               H3000750
      GO TO 9958                                                       H3000760
9959  FORMAT (22H  +0.0D0 EQUALS -0.0D0)                               H3000770
9960  FORMAT (25H  +0.0D0 NOT EQUAL -0.0D0)                            H3000780
9957  WRITE (NUVI, 9959)                                               H3000790
9958  MACVI = 0                                                        H3000800
      WRITE (NUVI, 7950)                                               H3000810
7950  FORMAT (33H0 TEST COMPUTATIONAL SIGN OF ZERO/2X)                 H3000820
C*****  TEST FOR COMPUTATIONALLY CREATED +0 AND -0                     H3000830
      IF((IVI * JVI) .EQ. (JVI))MACVI = MACVI + 1                      H3000840
      IF((JVI) .EQ. (JVI * IIVI))MACVI = MACVI + 1                     H3000850
      IF((JVI / IVI) .EQ. (+0) )MACVI = MACVI + 1                      H3000860
      IF((IVI + KVI) .EQ. (JVI))MACVI = MACVI + 1                      H3000870
      IF((KKVI + IIVI) .EQ. (JVI))MACVI = MACVI + 1                    H3000880
      IF((IIVI - IVI) .EQ. (JVI))MACVI = MACVI + 1                     H3000890
      IF((KVI - KKVI) .EQ. (JVI))MACVI = MACVI + 1                     H3000900
      IF (MACVI - 7) 9956, 9940, 9956                                  H3000910
9956  WRITE (NUVI,9953)                                                H3000920
      GO TO 7955                                                       H3000930
9940  WRITE (NUVI,9952)                                                H3000940
C*****  TEST FOR COMPUTATIONALLY CREATED +0.0 AND -0.0                 H3000950
7955  MACVI = 0                                                        H3000960
      IF ((AVS * BVS) .EQ. (BVS)) MACVI = MACVI + 1                    H3000970
      IF ((BVS) .EQ. (BVS * AAVS)) MACVI = MACVI + 1                   H3000980
      IF ((BVS / AVS) .EQ. ( 0.0)) MACVI = MACVI + 1                   H3000990
      IF ((AVS + CVS) .EQ. (BVS)) MACVI = MACVI + 1                    H3001000
      IF ((CCVS + AAVS) .EQ. (BVS)) MACVI = MACVI + 1                  H3001010
      IF ((AAVS - AVS) .EQ. (BVS)) MACVI = MACVI + 1                   H3001020
      IF ((CVS - CCVS) .EQ. (BVS)) MACVI = MACVI + 1                   H3001030
      IF (MACVI - 7) 7951, 7952, 7951                                  H3001040
7951  WRITE (NUVI, 9946)                                               H3001050
      GO TO 7953                                                       H3001060
7952  WRITE (NUVI, 9945)                                               H3001070
C*****  TEST FOR COMPUTATIONALLY CREATED +0.0D0 AND -0.0D0             H3001080
7953  MACVI = 0                                                        H3001090
      IF ((DPAVD * DPCVD) .EQ. (DPCVD)) MACVI = MACVI + 1              H3001100
      IF ((DPCVD) .EQ. (DPCVD * DPBVD)) MACVI = MACVI + 1              H3001110
      IF ((DPCVD / DPAVD) .EQ. (0.0D0)) MACVI = MACVI + 1              H3001120
      IF ((DPAVD + DPEVD) .EQ. (DPCVD)) MACVI = MACVI + 1              H3001130
      IF ((DPFVD + DPBVD) .EQ. (DPCVD)) MACVI = MACVI + 1              H3001140
      IF ((DPBVD - DPAVD) .EQ. (DPCVD)) MACVI = MACVI + 1              H3001150
      IF ((DPEVD - DPFVD) .EQ. (DPCVD)) MACVI = MACVI + 1              H3001160
      IF (MACVI - 7) 7954, 9939, 7954                                  H3001170
7954  WRITE (NUVI, 9960)                                               H3001180
      GO TO 9941                                                       H3001190
9939  WRITE (NUVI, 9959)                                               H3001200
 9941 MCAVI = 0                                                        H3001210
      WRITE (NUVI, 9942)                                               H3001220
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9942  FORMAT(31H0 TEST -LOGICAL IF- FOLLOWED BY/                      H3001230
     131H  DIFFERENT KINDS OF STATEMENTS )                             H3001240
C*****  TEST 1                                                        H3001250
C*****    LOGICAL IF FOLLOWED BY SIMPLE ASSIGNMENT STATEMENT          H3001260
C*****    CORRECT RESULT = 0, OTHERWISE RESULT = 1                    H3001270
      IF (MCA1B(2)) MCAVI = 1                                         H3001280
      WRITE (NUVI,3009) MCAVI                                         H3001290
C*****  TEST 2                                                        H3001300
C*****    LOGICAL IF FOLLOWED BY USE OF INTRINSIC FUNCTION            H3001310
C*****    CORRECT RESULT =0, OTHERWISE RESULT =2                      H3001320
      MCAVI = 2                                                       H3001330
      IF (MCAVB) MCAVI = IFIX(5.0 - 4.0 - 1.0)                        H3001340
      WRITE (NUVI,3009) MCAVI                                         H3001350
      MCAVI = 0                                                       H3001360
C*****  TEST 3                                                        H3001370
C*****    LOGICAL IF FOLLOWED BY ARITHMETIC STATEMENT                 H3001380
C*****    CORRECT RESULT =0, OTHERWISE RESULT =3                      H3001390
      IF (MCAVB .AND. MCBVB) MCAVI = 3* 2 / 2                         H3001400
      WRITE (NUVI,3009) MCAVI                                         H3001410
C*****  TEST 4                                                        H3001420
C*****    LOGICAL IF FOLLOWED BY GO TO STATEMENT                      H3001430
C*****    CORRECT RESULT =0, OTHERWISE RESULT =4                      H3001440
      MCAVI = 0                                                       H3001450
      IF (MCAVB .AND. MCBVB .OR. MCA1B(1)) GO TO 3001                 H3001460
      MCAVI = 4                                                       H3001470
3001  WRITE (NUVI,3009) MCAVI                                         H3001480
C*****  TEST 5                                                        H3001490
C*****    LOGICAL IF FOLLOWED BY CALL STATEMENT                       H3001500
C*****    CORRECT RESULT =0, OTHERWISE RESULT =5                      H3001510
      MCAVI =0                                                        H3001520
      IF (MCBVB .OR. (1 .GE. 2) .AND..FALSE.) CALL SMCQ(MCAVI)        H3001530
      WRITE (NUVI,3009) MCAVI                                         H3001540
C*****  TEST 6                                                        H3001550
C*****    LOGICAL IF FOLLOWED BY NESTED USE OF INTRINSIC FUNCTIONS    H3001560
C*****    CORRECT RESULT =0, OTHERWISE RESULT =6                      H3001570
      MCAVI = 6                                                       H3001580
      IF (.TRUE. .OR. ((1. .LE. (0.1 + 1.5)) .AND. (MCA1B(1) .OR. .TRUE H3001590
     1.)) .AND. MCBVB)  MCAVI = IFIX(REAL((0.0,1.0)))                 H3001600
      WRITE (NUVI,3009) MCAVI                                         H3001610
C*****  TEST 7                                                        H3001620
C*****    LOGICAL IF FOLLOWED BY ASSIGNED GO TO STATEMENT             H3001630
C*****    CORRECT RESULT =0, OTHERWISE RESULT =7                      H3001640
      ASSIGN 3002 TO MCBVI                                            H3001650
      MCAVI = 7                                                       H3001660
      IF (.NOT. (MCAVB .AND. MCBVB .AND. .FALSE. .OR. (.NOT. .TRUE.))) H3001670
     1GO TO MCBVI,(3001,3002,3003)                                    H3001680
      GO TO 3003                                                      H3001690
3002  MCAVI = 0                                                       H3001700
3003  WRITE (NUVI,3009) MCAVI                                         H3001710
C*****  TEST 8                                                        H3001720
C*****    LOGICAL IF FOLLOWED BY ARITHMETIC IF STATEMENT              H3001730
C*****    CORRECT RESULT =0, OTHERWISE RESULT =8                      H3001740
      MCAVI = 0                                                       H3001750
      IF (.NOT. (.NOT.(.TRUE. .OR. MCAVB .AND. (8. .NE. 7.))))        H3001760
     1IF (MCAVI) 3004,3005,3004                                       H3001770
3004  MCAVI = 8                                                       H3001780
3005  WRITE (NUVI,3009) MCAVI                                         H3001790
C*****  TEST 9                                                        H3001800
C*****    LOGICAL IF FOLLOWED BY I/O STATEMENT                        H3001810
C*****    CORRECT RESULT =0, OTHERWISE RESULT =9                      H3001820
      MCAVI = 0                                                       H3001830
      IF ((8.0D0 .EQ. (1. + 7.)) .AND. (.NOT. (3 .NE. 3)))            H3001840
     1WRITE (NUVI,3009) MCAVI                                         H3001850
C*****  TEST 10                                                       H3001860
C*****    LOGICAL IF FOLLOWED BY COMPUTED GO TO STATEMENT             H3001870
C*****    CORRECT RESULT =0, OTHERWISE RESULT =10                     H3001880
      MCAVI = 2                                                       H3001890
      IF ( .TRUE. .AND. (8 .GE. 6) .OR. (.FALSE.)) GO TO (9950,3006),  H3001900
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     1MCAVI                                                             H3001910
9950  MCAVI = 10                                                        H3001920
      GO TO 3007                                                        H3001930
3006  MCAVI = 0                                                         H3001940
3007  WRITE (NUVI,3009) MCAVI                                           H3001950
      WRITE (NUVI,3008)                                                 H3001960
C*****  TEST EXPRESSIONS IN LOGICAL IF STATEMENTS                       H3001970
C*****    TEST 11   .LT. EXPRESSION, RELATION, EXPRESSION  (TRUE)       H3001980
      MCAVI = 11                                                        H3001990
      IF((SNGL(DABS(-DSIGN(DBLE(2.0),1.0D0)))).LT.AMIN1((FLOAT(IDIM     H3002000
     1 (1 + 2, 0))), (AIMAG(CMPLX(1.0,2.0)))) + 1.0) MCAVI = 0          H3002010
      WRITE (NUVI, 3009) MCAVI                                          H3002020
C*****    TEST 12  .LT. EXPRESSION, RELATION, CONSTANT  (TRUE)          H3002030
      MACVI = 12                                                        H3002040
      IF((AMIN1(FLOAT(IDIM(4 - 1,0)) , AIMAG(CMPLX(1.0,2.0)))).LT. 4.0) H3002050
     1MACVI = 0                                                         H3002060
      WRITE (NUVI, 3009) MACVI                                          H3002070
C*****    TEST 13  .LT.  CONSTANT(O.P.),RELATION, EXPRESSION (REAL)(TRUE)H3002080
      MACVI = 13                                                        H3002090
C*****IF (1.(D0).LT. (SNGL(OABS(DSIGN(DBLE(4.0),1.000))))) MACVI = 0    H3002100
C*****WRITE (NUVI, 3009) MACVI                                          H3002110
C*****    TEST 14  .LE. .ANO. .LE.  (SHOULO BE LESS ANO EQUAL)  (TRUE)  H3002120
      MACVI = 14                                                        H3002130
      IF((REAL(CONJG((1.0,-2.0))) + AIMAG((16.0,-4.0)) .LE.             H3002140
     1      AIMAG(CONJG((1.0,-2.0))) + REAL((-4.0,16.0)) + 1.0) .ANO.   H3002150
     2     (AIMAG(CONJG((2.0,-4.0))) + REAL((-8.0,16.0)).LE.            H3002160
     3      REAL(CONJG((4.0,-2.0))) + AIMAG((16.0,-8.0))))MACVI = 0     H3002170
      WRITE (NUVI, 3009) MACVI                                          H3002180
C*****    TEST I5 .LE.  (FALSE)                                         H3002190
      MACVI = 0                                                         H3002200
      IF (MAX1((AMAX0(4,2,-(1 * 4))),16.0) .LE. 2 ** 3)MACVI = 15       H3002210
      WRITE (NUVI, 3009) MACVI                                          H3002220
C*****    TEST 16    .NE. .ANO.  .EQ.  (TRUE)                         H3002230
      MACVI = 16                                                        H3002240
      IF(((AINT(AINT(AINT(1.4 + 2.9)+1.6)-8.1)).NE.(-8.0)).ANO.(-1.0.EQ.H3002250
     1AINT(AINT(AINT(2.6 + 4.8) + 1.4)-9.2)))MACVI = 0                  H3002260
      WRITE (NUVI, 3009) MACVI                                          H3002270
C*****    TEST 17  .GT.  (TRUE)                                         H3002280
      MACVI = 17                                                        H3002290
      IF((FLOAT(IABS(IFIX(ABS(-5.0+ SIGN(-1.0,2.0)))))) .GT. 2.0D0)     H3002300
     1MACVI = 0                                                         H3002310
      WRITE (NUVI, 3009) MACVI                                          H3002320
C*****    TEST 18  .GE.  EQUAL  (TRUE)                                  H3002330
      MACVI = 18                                                        H3002340
      IF((8.0).GE.(FLOAT(IABS(IFIX(ABS(-4.0+SIGN(4.0,-2.0)))))))MACVI=0 H3002350
      WRITE (NUVI, 3009) MACVI                                          H3002360
C*****    TEST 19  .GE.  GREATER (TRUE)                                 H3002370
      MACVI = 19                                                        H3002380
      IF((MACVI).GE.(IABS(IFIX(ABS(-4.0 + SIGN(8.0,-4.0))))))MACVI = 0  H3002390
      WRITE (NUVI, 3009) MACVI                                          H3002400
C*****    TEST 20   .GT.  (FALSE)  .OR.  .EQ. (TRUE)                    H3002410
      MACVI = 20                                                        H3002420
      IF((-MACVI) .GT. (MAX1 (AMAX0(8,-(2*4),4) ,16.0)).OR. .NOT.(IABS  H3002430
     1 (-20) .NE. MACVI))MACVI = 0                                      H3002440
      WRITE (NUVI, 3009) MACVI                                          H3002450
      WRITE (NUVI, 9943)                                                H3002460
9943  FORMAT(28H0 ALL VALUES SHOULO BE ZERO./                           H3002470
     137H  A VALUE OTHER THAN ZERO WILL BE THE /                        H3002480
     234H  NUMBER OF THE TEST WHICH FAILED. )                           H3002490
3008  FORMAT(34H0 THERE SHOULD BE 10 VALUES ABOVE, /                    H3002500
     131H  IF ONLY 9, TEST 9 HAS FAILED.)                               H3002510
3009  FORMAT(12X, I10)                                                  H3002520
C*****    ENO OF TEST SEGMENT 300                                       H3002530
C*****  WHEN EXECUTING ONLY SEGMENT 300, THE  STOP  ANO  ENO  CAROS     H3002540
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H3002550
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H3002560
C=    STOP                                                              H3002570
C=    ENO                                                               H3002580
```

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C*****************************************************************************H3010010
C*****                                                                        H3010020
C*****                          BARIF - (301)                                 H3010030
C*****                                                                        H3010040
C*****************************************************************************H3010050
C*****  GENERAL PURPOSE                                          ASA REF H3010060
C*****    TEST BASIC FORTRAN ARITHMETIC IF STATEMENT               7.1.2.2H3010070
C*****  GENERAL COMMENTS                                                    H3010080
C*****    BASIC INTRINSIC FUNCTIONS ASSUMED WORKING                         H3010090
C*****                                                                      H3010100
C*****  S P E C I F I C A T I O N S  SEGMENT 301                            H3010110
C*****                                                                      H0016115
C*****  WHEN EXECUTING ONLY SEGMENT 301, THE SPECIFICATION STATEMENTS       H0016120
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                    H0016125
C*****  IN COLUMNS  1  AND  2  REMOVED.                                     H0016130
C=     DIMENSION L1I(10)                                                    H0016135
C=     DIMENSION MCA1I(5),CMA1S(5)                                          H0016140
C*****                                                                      H0016145
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.         H3010120
C*****                                                                      H0076125
C*****  WHEN EXECUTING ONLY SEGMENT 301, THE FOLLOWING STATEMENT            H0076130
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.              H0076135
C*****                                                                      H0076140
C=     NUVI = 6                                                             H0076145
C*****                                                                      H0076150
       WRITE (NUVI,3010)                                                    H3010130
3010   FORMAT (1H1,1X,27HBARIF - (301) BASIC FORTRAN/15X,          24HH3010140
     1 ARITHMETIC IF STATEMENT/2X,18HASA REF. - 7.1.2.2/2X,7HRESULTS)     H3010150
C*****    HEADER FOR SEGMENT 301 WRITTEN                                  H3010160
       MCA1I(1) = 5                                                         H3010170
       MCAVI = 0                                                            H3010180
       MCBVI = 21                                                           H3010190
       JACVI = -0                                                           H3010200
       CMA1S(1) = 10.5                                                      H3010210
       CMAVS = -0.0                                                         H3010220
       CMBVS = -15.E0                                                       H3010230
C*****  TEST FOR SIGN OF ZERO - TYPE INTEGER                    4.2/11 H3010240
       DO 8335  IVI = 1,9                                                   H3010250
8335   L1I(IVI) = 0                                                         H3010260
       MVI = 1                                                              H3010270
       KVI = 0                                                              H3010280
       JVI = -0                                                             H3010290
       BVS = -0.0                                                           H3010300
       NVI = 1                                                              H3010310
       WRITE (NUVI, 8300)                                                   H3010320
       IF (-0) 8311, 8314, 8317                                             H3010330
8320   IF (0) 8312, 8315, 8318                                              H3010340
8321   IF (+0) 8313, 8316, 8319                                             H3010350
8322   NVI = 10                                                             H3010360
       IF (JVI + (-0)) 8311, 8314, 8317                                     H3010370
8323   IF (-IABS(JVI)) 8312, 8315, 8318                                     H3010380
8324   IF (-JVI + (+0)) 8313, 8316, 8319                                    H3010390
8325   WRITE (NUVI, 8303)(L1I(IVI), IVI = 1,9)                              H3010400
C*****    TEST FOR SIGN OF ZERO - TYPE REAL                               H3010410
       MVI = 2                                                              H3010420
       KVI = 0                                                              H3010430
       NVI = 1                                                              H3010440
       DO 8336  IVI = 1,9                                                   H3010450
8336   L1I(IVI) = 0                                                         H3010460
       WRITE (NUVI, 8304)                                                   H3010470
       IF (-0.0) 8311, 8314, 8317                                           H3010480
8326   IF (0.0) 8312, 8315, 8318                                            H3010490
8327   IF (+0.0) 8313, 8316, 8319                                           H3010500
8328   NVI = 10                                                             H3010510
       IF (BVS +(-0.0)) 8311, 8314, 8317                                    H3010520
8329   IF (-ABS(BVS))  8312, 8315, 8318                                     H3010530
8330   IF (-BVS + (+0.0)) 8313, 8316, 8319                                  H3010540
8331   WRITE (NUVI, 8303) (L1I(IVI), IVI = 1,9)                             H3010550
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      WRITE (NUVI, 8337)                                                H3010560
      GO TO 8305                                                        H3010570
C*****  SWITCH FOR INTEGER AND REAL TESTS                               H3010580
8332  KVI = KVI + 1                                                     H3010590
      GO TO (8333, 8334) , MVI                                          H3010600
C*****  RETURNS FOR TEST SIGN OF INTEGER ZERO                           H3010610
8333  GO TO (8320, 8321, 8322, 8323, 8324, 8325), KVI                   H3010620
C*****  RETURNS FOR TEST SIGN OF REAL ZERO                              H3010630
8334  GO TO (8326, 8327, 8328, 8329, 8330, 8331), KVI                   H3010640
C*****  TALLY RESULTS OF CONTROL TRANSFERS                              H3010650
8311  L1I(1) = L1I(1) + NVI                                             H3010660
      GO TO 8332                                                        H3010670
8312  L1I(2) = L1I(2) + NVI                                             H3010680
      GO TO 8332                                                        H3010690
8313  L1I(3) = L1I(3) + NVI                                             H3010700
      GO TO 8332                                                        H3010710
8314  L1I(4) = L1I(4) + NVI                                             H3010720
      GO TO 8332                                                        H3010730
8315  L1I(5) = L1I(5) + NVI                                             H3010740
      GO TO 8332                                                        H3010750
8316  L1I(6) = L1I(6) + NVI                                             H3010760
      GO TO 8332                                                        H3010770
8317  L1I(7) = L1I(7) + NVI                                             H3010780
      GO TO 8332                                                        H3010790
8318  L1I(8) = L1I(8) + NVI                                             H3010800
      GO TO 8332                                                        H3010810
8319  L1I(9) = L1I(9) + NVI                                             H3010820
      GO TO 8332                                                        H3010830
8300  FORMAT(/ 38H  TEST FOR SIGN OF ZERO - TYPE INTEGER// 29H PATH  * FH3010840
     1ORM OF EXPRESSION */ 29H OF IF *  -0  *   0  *  +0  * )          H3010850
8303  FORMAT( 1H ,7(4H****)/ 1H ,4(6X,1H*)/ 8H  NEG. *,3(I4,3H  *)/1H ,4H3010860
     1(6X,1H*)/8H  ZERO *,3(I4,3H  *)/1H ,4(6X,1H*)/8H  POS. *,3(I4,    H3010870
     23H  *)/1H , 4(6X,1H*)/1H )                                        H3010880
8304  FORMAT(//35H  TEST FOR SIGN OF ZERO - TYPE REAL //  29H PATH  * FOH3010890
     1RM OF EXPRESSION */ 29H OF IF * -0.0 *  0.0 * +0.0 * )           H3010900
8337  FORMAT(/34H  ALL ENTRIES SHOULD BE  0  EXCEPT /36H  THE ZERO PATH,H3010910
     1 WHICH SHOULD BE  11 /33H  IN EACH COLUMN. OTHER TESTS MAY   / 31HH3010920
     2  FAIL IF THESE RESULTS DIFFER.///37H  TEST EXPRESSIONS IN  IF  STH3010930
     3ATEMENTS /1H )                                                   H3010940
C*****     ARITHMETIC IF WITH EXPRESSIONS OF TYPE INTEGER               H3010950
C*****     TEST 1 - SHOULD TAKE ZERO BRANCH                             H3010960
8305  IF (MCA1I(1) - 5) 9981,3011,9981                                  H3010970
C*****     TEST 2 - SHOULD TAKE ZERO BRANCH                             H3010980
3011  IF (MCA1I(1) + 5 - IFIX(CMA1S(1))) 9982,3012,9982                 H3010990
C*****     TEST 3 - SHOULD TAKE MINUS BRANCH                            H3011000
3012  IF ((MCBVI * 2 / 7) - IABS(IFIX(10.5 - 10.4)) - 7) 3013,9983,9983 H3011010
C*****     TEST 4 - SHOULD TAKE PLUS BRANCH                             H3011020
3013  IF ((MCA1I(1) - 4) ** 99 /(MCBVI - 4 * MCA1I(1))) 9984,9984,3014  H3011030
C*****     ARITHMETIC IF WITH EXPRESSION OF TYPE REAL                   H3011040
C*****     TEST 5 - SHOULD TAKE ZERO BRANCH                             H3011050
3014  IF (CMA1S(1) - 10.5) 9985,3015,9985                               H3011060
C*****     TEST 6 - SHOULD TAKE MINUS BRANCH                            H3011070
3015  IF (CMA1S(1) * 2.0 -(FLOAT(MCBVI) **1) - 1.0) 3016,9986,9986      H3011080
C*****     TEST 7 - SHOULD TAKE PLUS BRANCH                             H3011090
3016  IF (CMBVS * (-2.0) ** (MCBVI - 4 * MCA1I(1)) - 29.0)9987,9987,3017H3011100
C*****     TEST 8 - SHOULD TAKE ZERO BRANCH                             H3011110
3017  IF (MCAVI) 9988,3018,9980                                         H3011120
3018  WRITE (NUVI,3019)                                                 H3011130
      GO TO 9980                                                        H3011140
3019  FORMAT (  18H  TESTS SUCCESSFUL )                                 H3011150
9981  MCAVI = 1                                                         H3011160
      IF (IABS(MCA1I(1) - 5)) 8301,8302,8301                            H3011170
8301  WRITE (NUVI,9989) MCAVI                                           H3011180
      GO TO 3011                                                        H3011190
8302  WRITE (NUVI,8306) MCAVI                                           H3011200
8306  FORMAT (//2X,14HERROR IN TEST ,I2,23H BECAUSE MINUS ZERO WAS/     H3011210
     1  30H  TREATED AS A NEGATIVE NUMBER)                             H3011220
      GO TO 3011                                                        H3011230
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9982  MCAVI = 2                                                          H3011240
      IF (IABS(MCA1I(1) + 5 - IFIX(CMA1S(1)))) 8307,8308,8307            H3011250
8307  WRITE (NUVI,9989) MCAVI                                            H3011260
      GO TO 3012                                                         H3011270
8308  WRITE (NUVI,8306) MCAVI                                            H3011280
      GO TO 3012                                                         H3011290
9983  MCAVI = 3                                                          H3011300
      WRITE (NUVI,9989) MCAVI                                            H3011310
      GO TO 3013                                                         H3011320
9984  MCAVI = 4                                                          H3011330
      WRITE (NUVI,9989) MCAVI                                            H3011340
      GO TO 3014                                                         H3011350
9985  MCAVI = 5                                                          H3011360
      IF (ABS(CMA1S(1) - 10.5)) 8309,8310,8309                           H3011370
8309  WRITE (NUVI,9989) MCAVI                                            H3011380
      GO TO 3015                                                         H3011390
8310  WRITE (NUVI,8306) MCAVI                                            H3011400
      GO TO 3015                                                         H3011410
9986  MCAVI = 6                                                          H3011420
      WRITE (NUVI,9989) MCAVI                                            H3011430
      GO TO 3016                                                         H3011440
9987  MCAVI = 7                                                          H3011450
      WRITE (NUVI,9989) MCAVI                                            H3011460
      GO TO 3017                                                         H3011470
9988  MCAVI = 8                                                          H3011480
      WRITE (NUVI,9989) MCAVI                                            H3011490
9989  FORMAT (  6H  TEST,I2,7H FAILED)                                   H3011500
9980  CONTINUE                                                           H3011510
C*****    END OF TEST SEGMENT 301                                        H3011520
C*****  WHEN EXECUTING ONLY SEGMENT 301, THE  STOP  AND  END  CARDS      H3011530
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H3011540
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H3011550
C=    STOP                                                               H3011560
C=    END                                                                H3011570
C*************************************************************************H3020010
C*****                                                                   H3020020
C*****                          FARIF - (302)                            H3020030
C*****                                                                   H3020040
C*************************************************************************H3020050
C*****  GENERAL PURPOSE                                        ASA REF  H3020060
C*****    TEST OF FULL FORTRAN ARITHMETIC IF STATEMENT          7.1.2.2H3020070
C*****    GENERAL COMMENTS                                             H3020080
C*****    INTRINSIC FUNCTIONS ASSUMED WORKING                          H3020090
C*****                                                                 H3020100
C*****  S P E C I F I C A T I O N S  SEGMENT 302                       H3020110
C*****                                                                 H0016150
C*****  WHEN EXECUTING ONLY SEGMENT 302, THE SPECIFICATION STATEMENTS  H0016155
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=               H0016160
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H0016165
C*****                                                                 H0016170
C=    DIMENSION MCA1I(5),AC2S(5,6)                                     H0016175
C=    DOUBLE PRECISION MCAVD,MCBVD                                     H0016180
C=    COMPLEX CHAVC                                                    H0016185
C*****                                                                 H0016190
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.     H3020120
C*****                                                                 H0076155
C*****  WHEN EXECUTING ONLY SEGMENT 302, THE FOLLOWING STATEMENT       H0076160
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.         H0076165
C*****                                                                 H0076170
C=    NUVI = 6                                                         H0076175
C*****                                                                 H0076180
      WRITE (NUVI,3020)                                                H3020130
3020  FORMAT (1H1,1X,26HFARIF - (302) FULL FORTRAN/  16X,24HARITHMETIC IH3020140
     1F STATEMENTS/                                                    H3020150
     220H  ASA REF. - 7.1.2.2/2X,7HRESULTS)                            H3020160
C*****    HEADER FOR SEGMENT 302 WRITTEN                               H3020170
      MCA1I(1) = 5                                                     H3020180
      MCAVI = 0                                                        H3020190
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       AC2S(1,1) = 10.5                                                 H3020200
      MCAVO = -15.000                                                   H3020210
      CHAVC = (1.0,2.0)                                                 H3020220
      MCBVO = -0.000                                                    H3020230
C*****    ARITHMETIC IF WITH EXPRESSION OF TYPE OOUBLE PRECISION        H3020240
C*****    TEST THAT MINUS ZERO IS TREATED AS ZERO              4.2/11H3020250
      IF (MCBVO) 9301,9303,9301                                         H3020260
9301  WRITE (NUVI,9302)                                                 H3020270
9302  FORMAT (//2X,37HERROR, MINUS ZERO TREATEO AS NEGATIVE/            H3020280
     1 36H  NUMBER - OTHER TESTS MAY FAIL AS A/                         H3020290
     2 8H  RESULT)                                                      H3020300
      MCAVI = 0                                                         H3020310
C*****    TEST 1 - SHOULO TAKE ZERO BRANCH                            H3020320
9303  IF (MCAVD + 15.0D0) 3028,3021,3028                                H3020330
C*****    TEST 2 - SHOULD TAKE MINUS BRANCH                           H3020340
3021  IF (MCAVD / DBLE(FLOAT(MCA1I(1))) * 2.D0) 3022,3029,3029          H3020350
C*****    TEST 3 - SHOULO TAKE MINUS BRANCH                           H3020360
3022  IF (MCAVD/(-15.0D0) + 6.0D0 - 2.0D0 ** 3) 3023,9971,9971          H3020370
C*****    TEST 4 - SHOULD TAKE PLUS BRANCH                            H3020380
3023  IF (OSIGN(1.000,OBLE(REAL(CHAVC)))) 9972,9972,3024                H3020390
C*****    TEST 5 - SHOULO TAKE ZERO BRANCH                            H3020400
3024  IF (2.0D0 ** 2 - 4.000/ 1.000) 9973, 3025, 9973                   H3020410
3025  IF (MCAVI) 9974,3026,9970                                         H3020420
3026  WRITE (NUVI,3027)                                                 H3020430
      GO TO 9970                                                        H3020440
3027  FORMAT (//34H  SEGMENT 302 TESTEO SUCCESSFULLY.)                  H3020450
3028  MCAVI = 1                                                         H3020460
      IF (OABS(MCAVO + 15.000))9304,9305,9304                           H3020470
9304  WRITE (NUVI,9975) MCAVI                                           H3020480
      GO TO 3021                                                        H3020490
9305  WRITE (NUVI,9306) MCAVI                                           H3020500
9306  FORMAT (//2X,14HERROR IN TEST ,I2,23H BECAUSE MINUS ZERO WAS/     H3020510
     1  30H  TREATED AS A NEGATIVE NUMBER)                             H3020520
      GO TO 3021                                                        H3020530
3029  MCAVI = 2                                                         H3020540
      WRITE (NUVI,9975) MCAVI                                           H3020550
      GO TO 3022                                                        H3020560
9971  MCAVI = 3                                                         H3020570
      WRITE (NUVI,9975) MCAVI                                           H3020580
      GO TO 3023                                                        H3020590
9972  MCAVI = 4                                                         H3020600
      WRITE (NUVI,9975) MCAVI                                           H3020610
      GO TO 3024                                                        H3020620
9973  MCAVI = 5                                                         H3020630
      IF (OABS(2.0D0 ** 2 - 4.0D0 / 1.0D0)) 9307, 9308, 9307            H3020640
9307  WRITE (NUVI,9975) MCAVI                                           H3020650
      GO TO 3025                                                        H3020660
9308  WRITE (NUVI,9306) MCAVI                                           H3020670
      GO TO 3025                                                        H3020680
9974  MCAVI = 6                                                         H3020690
      WRITE (NUVI,9975) MCAVI                                           H3020700
9975  FORMAT (//6H  TEST,I3,8H FAILEO.)                                 H3020710
9970  CONTINUE                                                          H3020720
C*****    ENO OF TEST SEGMENT 302                                     H3020730
C*****  WHEN EXECUTING ONLY SEGMENT 302, THE  STOP  ANO  END  CARDS   H3020740
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=               H3020750
C*****  IN COLUMNS  1  AND  2  REMOVEO.                               H3020760
C=    STOP                                                            H3020770
C=    ENO                                                             H3020780
C*************************************************************************H3100010
C*****                                                                 H3100020
C*****                          IOFMT - (310)                          H3100030
C*****                                                                 H3100040
C*************************************************************************H3100050
C*****  GENERAL PURPOSE                                        ASA REFSH3100060
C*****    TO TEST ADDITIONAL FEATURES OF FORMATTED READ       7.1.3.2.2H3100070
C*****    AND WRITE STATEMENTS ANO FORMAT STATEMENTS          7.1.3.2.3H3100080
C*****  RESTRICTIONS OBSERVEO                                          H3100090
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C*****  *  ALL FORMAT STATEMENTS ARE LABELED                    7.2.3  /57H3100100
C*****  *  H AND X DESCRIPTORS ARE NEVER REPEATED               7.2.3.3/54H3100110
C*****  *  FOR W.D DESCRIPTORS, D IS ALWAYS SPECIFIED AND       7.2.3.1/31H3100120
C*****     W IS EQUAL TO OR GREATER THAN D                      7.2.3.1/33H3100130
C*****  *  FIELD WIDTH IS NEVER ZERO                            7.2.3  /18H3100140
C*****  *  IF THERE IS AN I/O LIST, THE FORMAT STATEMENT        7.2.3.4/22H3100150
C*****     CONTAINS AT LEAST ONE FIELD DESCRIPTOR (OTHER                  H3100160
C*****     THAN H OR X)                                                   H3100170
C*****  *  ITEMS IN I/O LIST CORRESPOND TO FORMAT DESCRIPTORS   7.2.3.4/36H3100180
C*****  *  NEGATIVE OUTPUT VALUES ARE SIGNED                    7.2.3.6/56H3100190
C*****  *  FIELD WIDTH NEVER EXCEEDED BY OUTPUT                 7.2.3.6/01H3100200
C*****  *  FOR I CONVERSION, EXTERNAL INPUT FIELDS ARE      7.2.3.6.1/07H3100210
C*****     INTEGER CONSTANTS                                              H3100220
C  INPUT DATA TO THIS SEGMENT CONSISTS OF 38 CARD IMAGES IN COL. 1 - 80   H3100230
C     COLS.         22  25  31  34-35  40-43  55  67  69  74-76          H3100240
CARD  1              .   .   .    0.   E+00   +   +        E00          H3100250
C     COLS.         16  31  33  42-45  50  59-60                        H3100260
CARD  2              +   +   .   D+00   .      D0                        H3100270
C     COLS. 1-----------14  18-----26  28-------38  42-------------58    H3100280
CARD  3     1.23456987654.  +1.234E-0  -98.7654E+0  + 2345.67891011+2    H3100290
C     COLS.  69-----78                                                   H3100300
CARD  3     -.109876-4                                                   H3100310
C     COLS          1---5                                                H3100320
CARDS 4,5,6,7,8     12345                                              H3100330
C     COLS.         1-3                                                  H3100340
CARDS 9,10,11,12    1.1                                                H3100350
C     COLS. 1-----------------------------------------------------58     H3100360
CARD  13    +0.339567E+02                                                H3100370
CARD  14      + .339567+2                                                H3100380
CARD  15     + 3.395670E1                                                H3100390
CARD  16     0.96295134244D+04                                           H3100400
CARD  17       .96295134244D04                                           H3100410
CARD  18       0.96295134244+4                                           H3100420
CARD  19     0.96295134244D+04                                           H3100430
CARD  20    31.23+0.14E+04+0.2D+02                                       H3100440
CARD  21    31.23  .14E+04   +.2+2                                       H3100450
CARD  22    -0.13579E+054444                                             H3100460
CARD  23    4444                                                         H3100470
CARD  24    4444                                                         H3100480
CARD  25    4444                                                         H3100490
CARD  26    4444                                                         H3100500
CARD  27    -333 5.555+0.4545E-04                                        H3100510
CARD  28    -6.666  .9989E+12                                            H3100520
CARD  29    7.77-0.747E-02  +0.549E022                                  H3100530
CARD  30    +0.662E-00  0.468-1011                                       H3100540
CARD  31     0.59542D+04-44.6666-0.1234567890D-03                        H3100550
CARD  32     54.9327-0.1395624534D+00                                    H3100560
CARD  33    65432.1                                                      H3100570
CARD  34    +0.848E+03     .848E3 + .1290D7+0.129D+07  0.412D21          H3100580
CARD  35    22222222222222222222222222222222222222222222222222222      H3100590
CARD  36       -.987E0-0.987E+00    +0.6D0 + 0.6D+00   .368D-5          H3100600
CARD  37       5   5   5   5                                            H3100610
CARD  38        987654   8647.86   987.654                             H3100620
CARD COLS. NOT MENTIONED ARE BLANK                                      H3100630
C*****                                                                  H3100640
C*****    READ AND WRITE STATEMENTS FOR ENTIRE SEGMENT FOLLOW           H3100650
C*****                                                                  H3100660
C*****    TEST THAT COMPLETELY BLANK FIELDS IN THE INPUT       7.2.3.6/45H3100670
C*****    ARE TREATED AS ZEROS. (ALL VARIABLES AND ARRAY                H3100680
C*****    ELEMENTS USED IN THIS TEST ARE FIRST SET TO                   H3100690
C*****    NON-ZERO VALUES.  I, E, F AND D DESCRIPTORS                   H3100700
C*****    APPEAR IN THE CORRESPONDING FORMAT STATEMENT                  H3100710
C*****                                                                  H3100720
C*****  S P E C I F I C A T I O N S  SEGMENT 310                        H3100730
C*****                                                                  H0016195
C*****  WHEN EXECUTING ONLY SEGMENT 310, THE SPECIFICATION STATEMENTS   H0016200
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                H0016205
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0016210
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C*****                                                                  H0016215
C=    OIMENSION A1S(5),A2S(2,2),A3S(3,3,3),EP1S(33)                     H0016220
C=    DIMENSION IAC1I(5),IAC2I(2,7),AC1S(25),AC2S(5,6)                  H0016225
C=    INTEGER MCA3I(2,3,3)                                              H0016230
C=    REAL MVS                                                          H0016235
C=    DOUBLE PRECISION  MCAVD,MCBVO,MCCVD,A1O(4),A2D(2,2),A3D(2,2,2)    H0016240
C=    DOUBLE PRECISION DPAVD,DPBVD,DPCVD,DPDVD,DPEVD,DPFVD,DPHVD,AAAVD  H0016245
C*****                                                                  H0016250
C*****  I N P U T - O U T P U T  TAPE ASSIGNMENT STATEMENTS              H3100740
C*****                                                                  H0076185
C*****  WHEN EXECUTING ONLY SEGMENT 310, THE FOLLOWING STATEMENTS       H0076190
C*****  NUVI = 6 , IRVI = 5 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.H0076195
C=    NUVI = 6                                                          H0076200
C=    IRVI = 5                                                          H0076205
C*****                                                                  H0076210
C*****    HEADER FORMAT STATEMENT                                       H3100750
3100  FORMAT (1H1,1X,38HIOFMT - (310) ADDITIONAL FORMATTED I/O          H3100760
     1  //2X,38HASA REFS - 7.1.3.2.2  7.1.3.2.3  7.2.3//2X,7HRESULTS)   H3100770
      WRITE (NUVI,3100)                                                 H3100780
      JACVI = 11111                                                     H3100790
      IAC1I(1) = -2345                                                  H3100800
      IAC2I(1,1) = 9999                                                 H3100810
      MCA3I(1,1,1) = 2                                                  H3100820
      ACVS = 1.2                                                        H3100830
      BCVS = -.34E-3                                                    H3100840
      A1S(1) = 34.56                                                    H3100850
      A1S(2) = 456.789E+02                                              H3100860
      A2S(1,1) = -7899.3                                                H3100870
      A2S(2,1) = +9876.543E-01                                          H3100880
      A3S(1,1,1) = .543                                                 H3100890
      A3S(2,1,1) = 4.33E+1                                              H3100900
      AAAVD = +2.22D+01                                                 H3100910
      A1D(1) = -.33456D-01                                              H3100920
      A2D(1,1) = 9987.76D+2                                             H3100930
      A3D(1,1,1) = 44.D-2                                               H3100940
C*****    FORMATS TO TEST THAT BLANK INPUT FIELDS ARE          7.2.3.6/45H3100950
C*****    TREATED AS ZEROS. I, E, F AND D FIELDS ARE TESTED             H3100960
C*****  CARDS 1 AND 2                                                   H3100970
3101  FORMAT (4(I5), 4(F3.1), 4(E11.4)/ 4(D15.8))                       H3100980
      READ (IRVI,3101) JACVI, IAC1I(1), IAC2I(1,1), MCA3I(1,1,1), ACVS, H3100990
     1     A1S(1), A2S(1,1), A3S(1,1,1), BCVS, A1S(2), A2S(2,1),        H3101000
     2     A3S(2,1,1), AAAVD, A1D(1), A2D(1,1), A3D(1,1,1)              H3101010
3102  FORMAT ( /2X,16HTEST BLANK INPUT/2X,26HEACH ANSWER SHOULD BE ZERO,H3101020
     1  4(/I6)  / 4(/F8.1) / 4(/E12.1) / 4(/D12.1))                     H3101030
      WRITE (NUVI,3102) JACVI, IAC1I(1), IAC2I(1,1), MCA3I(1,1,1), ACVS,H3101040
     1     A1S(1), A2S(1,1), A3S(1,1,1), BCVS, A1S(2), A2S(2,1),        H3101050
     2     A3S(2,1,1), AAAVD, A1D(1), A2D(1,1), A3D(1,1,1)              H3101060
C*****    TEST THAT DECIMAL POINTS APPEARING IN INPUT FIELDS  7.2.3.6/47H3101070
C*****    OVERRIDE THE SPECIFICATIONS SUPPLIED BY E, F AND              H3101080
C*****    D FIELD DESCRIPTORS                                           H3101090
3103  FORMAT (/34H  TEST DEC. PT. SPECIFIED BY INPUT/ 36H  3 LINES IN EAH3101100
     1CH GROUP SHOULD MATCH / 26H  * LINE IS HOLLERITH DATA )           H3101110
      WRITE (NUVI,3103)                                                 H3101120
      CMAVS = 1.23456                                                   H3101130
      CMBVS = 987654.                                                   H3101140
      CMEVS = 0.1234E+01                                                H3101150
      CMFVS = -0.987654E+02                                             H3101160
      DPAVD = 0.2345678910110+06                                        H3101170
      DPBVD = -0.109876D-04                                             H3101180
C*****  CARD 3                                                          H3101190
3104  FORMAT (2(F7.3), 2(E12.5), 2(D20.11))                             H3101200
      READ (IRVI,3104) ACVS, BCVS, FFCVS, GGCVS, MCAVD, MCBVD           H3101210
3105  FORMAT (/12H  *  1.23456,2(/F12.5)//13H  *  987654.0,2(/F13.1) /  H3101220
     1 /15H  *  0.1234E+01,2(/E15.4)//17H  * -0.987654E+02,2(/E17.6) /  H3101230
     2 /23H  *  0.2345678910110+06, 2(/D23.12)//17H  * -0.109876D-04,   H3101240
     3  2(/D17.6) )                                                    H3101250
      WRITE (NUVI,3105) CMAVS, ACVS, CMBVS, BCVS, CMEVS, FFCVS, CMFVS,  H3101260
     1     GGCVS, DPAVO, MCAVD, DPBVD, MCBVD                            H3101270
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C*****     TEST SIMPLE REPETITION OF FORMAT DESCRIPTORS          7.2.3.4/  H3101280
C*****     WHEN ADDITIONAL ITEMS REMAIN IN AN I/O LIST        7.1.3.2.1/  H3101290
C*****     AND THE LAST RIGHT PARENTHESIS HAS BEEN REACHED                  H3101300
C*****     IN THE CORRESPONDING FORMAT STATEMENT                            H3101310
3106  FORMAT (    35H1 TEST FORMAT DESCRIPTOR REPETITION/ 32H  ALL LINES H3101320
     1IN EACH GROUP SHOULD/ 14H  BE IDENTICAL)                           H3101330
      WRITE (NUVI,3106)                                                  H3101340
      JACVI = +12345                                                     H3101350
      KBCVI = 3                                                          H3101360
      CMAVS = 1.1                                                        H3101370
      CMBVS = 1.23                                                       H3101380
      CMEVS = 33.9567                                                    H3101390
      CMGVS = 1.4E+03                                                    H3101400
      DPAVD = 962951342.44D-5                                            H3101410
      DPBVD = 2.0D1                                                      H3101420
C*****  CARDS 4, 5, 6, 7, 8                                             H3101430
3107  FORMAT (I5)                                                        H3101440
      READ (IRVI,3107) IAC1I                                             H3101450
C*****  CARDS 9, 10, 11, 12                                             H3101460
3108  FORMAT (F3.1)                                                      H3101470
      READ (IRVI,3108) A2S                                               H3101480
C*****  CARDS 13, 14, 15                                                H3101490
9320  FORMAT (E13.6)                                                     H3101500
      READ (IRVI,9320) A1S(1), HHCVS, A1S(2)                             H3101510
C*****  CARDS 16, 17, 18, 19                                            H3101520
9321  FORMAT (D18.11)                                                    H3101530
      READ (IRVI,9321) A2D                                               H3101540
C*****  CARDS 20, 21                                                    H3101550
9322  FORMAT (I1,F4.2,E9.2,D8.1)                                         H3101560
      READ (IRVI,9322) LCCVI, DCVS, AC2S(5,6), A3D(1,2,2), MDCVI, FFCVS,H3101570
     1     GGCVS, AAAVD                                                  H3101580
9323  FORMAT ( /10H  *  12345)                                           H3101590
      WRITE (NUVI,9323)                                                  H3101600
9324  FORMAT (I10)                                                       H3101610
      WRITE (NUVI,9324) JACVI, IAC1I                                     H3101620
9325  FORMAT (/ 8H  *  1.1)                                              H3101630
      WRITE (NUVI,9325)                                                  H3101640
9326  FORMAT (F8.1)                                                      H3101650
      WRITE (NUVI,9326) CMAVS, A2S                                       H3101660
9329  FORMAT (/17H  *  0.339567E+02)                                     H3101670
      WRITE (NUVI,9329)                                                  H3101680
9330  FORMAT (E17.6)                                                     H3101690
      WRITE (NUVI,9330) CMEVS, A1S(1), HHCVS, A1S(2)                     H3101700
9331  FORMAT (/22H  *  0.96295134244D+04)                                H3101710
      WRITE (NUVI,9331)                                                  H3101720
9332  FORMAT (D22.11)                                                    H3101730
      WRITE (NUVI,9332) DPAVD, A2D                                       H3101740
9333  FORMAT (/31H  *  3  1.23  0.14E+04  0.2D+02)                       H3101750
      WRITE (NUVI,9333)                                                  H3101760
9334  FORMAT (I6,F6.2,E10.2,D9.1)                                        H3101770
      WRITE (NUVI,9334) KBCVI, CMBVS, CMGVS, DPBVD, LCCVI, DCVS,         H3101780
     1     AC2S(5,6), A3D(1,2,2), MDCVI, FFCVS, GGCVS, AAAVD            H3101790
C*****     TEST THAT FORMAT CONTROL PASSES TO THE GROUP          7.2.3.4/03H3101800
C*****     ENCLOSED BY THE LAST PRECEDING RIGHT PAREN.        7.1.3.2.1/39H3101810
C*****     WHEN THE I/O LIST CONTAINS MORE ELEMENTS THAN                    H3101820
C*****     THE NUMBER OF DESCRIPTORS IN THE FORMAT STMNT.                   H3101830
      JACVI = +4444                                                      H3101840
      KBCVI = -333                                                       H3101850
      LCCVI = 22                                                         H3101860
      MDCVI = 11                                                         H3101870
      ACVS = 5.555                                                       H3101880
      BCVS = -6.666                                                      H3101890
      CCVS = +7.77                                                       H3101900
      DCVS = 65432.1                                                     H3101910
      CMAVS = -0.13579E+5                                                H3101920
      CMBVS = 0.4545E-04                                                 H3101930
      CMCVS = 0.9989E12                                                  H3101940
      CMDVS = -0.747E-2                                                  H3101950
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      CMEVS = +0.549E+00                                                H3101960
      CMFVS = 0.662E-0                                                  H3101970
      CMGVS = 0.468E-10                                                 H3101980
      DPAVD = +59.542D02                                                H3101990
      DPBVD = -0.01234567890-2                                          H3102000
      DPCVD = -1395624534.D-10                                          H3102010
      DPDVD = +129.D4                                                   H3102020
      DPEVD = 4.12D+20                                                  H3102030
      DPFVD = 36.8D-7                                                   H3102040
      DPHVD = 0.6D00                                                    H3102050
      FFCVS = -44.6666                                                  H3102060
      GGCVS = +.549327E+2                                               H3102070
      HHCVS = 848.                                                      H3102080
      MVS = -.987                                                       H3102090
      CMHVS = 1.23E-1                                                   H3102100
      CMIVS = 646.E-2                                                   H3102110
C*****  CARDS 22, 23, 24, 25, 26                                        H3102120
9335  FORMAT ( E12.5, (I4))                                             H3102130
      READ (IRVI,9335) A1S(2), IAC1I                                    H3102140
C*****  CARDS 27, 28                                                    H3102150
9336  FORMAT (I4, (F6.3), E11.4)                                        H3102160
      READ (IRVI,9336) MRRVI, AC1S(1), EP1S(1), A3S(1,1,1), AC2S(2,2)   H3102170
C*****  CARDS 29, 30                                                    H3102180
9337  FORMAT (F4.2, (2(E10.3)), I2)                                     H3102190
      READ (IRVI,9337) A2S(2,2), A3S(2,1,1), EP1S(2), MCA3I(1,1,1),     H3102200
     1      BVS, AC2S(2,1), NECVI                                       H3102210
C*****  CARDS 31, 32                                                    H3102220
9338  FORMAT (D12.5, (F8.4,  D17.10))                                   H3102230
      READ (IRVI,9338) MCAVD, EP1S(3), A1D(1), A2S(1,2), A2D(2,1)       H3102240
C*****  CARDS 33, 34, 35, 36                                            H3102250
C*****  THIS READ CAUSES AN INPUT DATA CARD TO BE SKIPPED               H3102260
9339  FORMAT( F7.1, (/2(E10.3), 2(D10.3)), D10.3)                       H3102270
      READ (IRVI,9339)  CVS, A2S(2,1), A3S(1,2,2), A3D(1,1,1),          H3102280
     1                  A3D(1,2,1), A2D(2,2), A3S(1,2,1), EP1S(4),      H3102290
     2                  A1D(2), MCBVD, MCCVD                            H3102300
9340  FORMAT (/16H   * -0.13579E+05,2(/E16.5)//9H   *  4444,6(/I9))      H3102310
      WRITE (NUVI,9340) CMAVS, A1S(2), JACVI, IAC1I                     H3102320
9341  FORMAT (/ 8H   * -333, 2(/I8)/ 10H1 *  5.555,  2(/F10.3) //       H3102330
     115H   *  0.4545E-04, 2(/E15.4)// 10H  * -6.666, 2(/F10.3) //      H3102340
     215H   *  0.9989E+12, 2(/E15.4))                                   H3102350
      WRITE (NUVI,9341) KBCVI, MRRVI, ACVS, AC1S(1), CMBVS, EP1S(1),    H3102360
     1      BCVS, A3S(1,1,1), CMCVS, AC2S(2,2)                          H3102370
9342  FORMAT (/9H   *  7.77 ,2(/F9.2)//14H  * -0.747E-02, 2(/E14.3) //  H3102380
     1  14H   *  0.549E+00, 2(/E14.3) //7H   *  22, 2(/I7) //           H3102390
     2  14H   *  0.662E+00, 2(/E14.3) //14H  *  0.468E-10, 2(/E14.3) //  H3102400
     3   7H   *  11, 2(/I7) )                                           H3102410
      WRITE (NUVI,9342) CCVS, A2S(2,2), CMDVS, A3S(2,1,1), CMEVS,       H3102420
     1      EP1S(2), LCCVI, MCA3I(1,1,1), CMFVS, BVS, CMGVS, AC2S(2,1), H3102430
     2      MDCVI, NECVI                                                H3102440
9343  FORMAT (/16H   *  0.59542D+04,2(/D16.5)//12H  * -44.6666,2(/F12.4)/H3102450
     1/21H   * -0.1234567890D-03,2(/D21.10)/12H1 *  54.9327,2(/F12.4)//  H3102460
     2 21H   * -0.1395624534D+00,2(/D21.10) )                           H3102470
      WRITE (NUVI,9343) DPAVD, MCAVD, FFCVS, EP1S(3), DPBVD, A1D(1),    H3102480
     1      GGCVS, A2S(1,2), DPCVD, A2D(2,1)                            H3102490
9344  FORMAT (/12H   *  65432.1/ 2(F12.1/) / 14H   *  0.848E+03/       H3102500
     1  3(E14.3/) / 14H   *  0.129D+07/ 3(D14.3/) / 14H   *  0.412D+21/  H3102510
     2  2(D14.3/) / 14H   * -0.987E+00/ 3(E14.3/) / 12H   *  0.6D+00/   H3102520
     3  3(D12.1/) / 14H   *  0.368D-05, 2(/D14.3) )                     H3102530
      WRITE (NUVI,9344) DCVS, CVS, HHCVS, A2S(2,1), A3S(1,2,2), DPDVD,  H3102540
     1                  A3D(1,1,1), A3D(1,2,1), DPEVD, A2D(2,2),        H3102550
     2                  MVS, A3S(1,2,1), EP1S(4), DPHVD, A1D(2), MCBVD, H3102560
     3                  DPFVD, MCCVD                                    H3102570
9345  FORMAT (/14H   *  0.777E+01/ (E14.3))                            H3102580
      WRITE (NUVI,9345) CCVS, A2S(2,2)                                  H3102590
9346  FORMAT (/ 22H   * -333    0.59542D+04/I8, D14.5 )                 H3102600
      WRITE (NUVI,9346) KBCVI, DPAVD, MRRVI, MCAVD                      H3102610
9347  IF (MRRVI - 5) 9348, 9349, 9348                                   H3102620
C*****  CARD 37                                                         H3102630
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9348  READ (IRVI, 9336) MRRVI                                          H3102640
      GO TO 9347                                                        H3102650
C*****  *  ADDITIONAL  SCALE FACTOR ON INPUT-OUTPUT                    H3102660
C*****  CARD 38                                                        H3102670
9349  READ(IRVI, 9327) A1S(3), A1S(4), A1D(4)                          H3102680
9327  FORMAT (  1PE10.3, -1PE10.2, D10.3)                              H3102690
      WRITE(NUVI, 9328) A1S(3), A1S(4), A1D(4)                          H3102700
9328  FORMAT(//22H1 SCALE FACTOR ON READ/ 31H  IN ORDER OF FORMAT OCCURRH3102710
     2ENCE/28H  NO EXPONENT ON INPUT DATA //                            H3102720
     3  40H  CARD     987654      8647.86      987.654/                H3102730
     4  40H  DESC   1PE10.3     -1PE10.2        D10.3/                 H3102740
     5  40H  TO BE .988E+02    .8648E+05    .9877D+04/                 H3102750
     6  4H  IS,      E12.3,      E12.4,      D12.4)                    H3102760
C*****    END OF TEST SEGMENT 310                                      H3102770
C*****  WHEN EXECUTING ONLY SEGMENT 310, THE  STOP  AND  END  CARDS    H3102780
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                H3102790
C*****  IN COLUMNS  1  AND  2  REMOVED.                                H3102800
C=    STOP                                                            H3102810
C=    END                                                             H3102820
C*************************************************************************H3120010
C*****                                                                H3120020
C*****                          RDFMT - (312)                         H3120030
C*****                                                                H3120040
C*************************************************************************H3120050
C*****  GENERAL PURPOSE                                        ASA REFSH3120060
C*****    TO TEST FORMATTED READ AND WRITE STATEMENTS          7.2.3.10H3120070
C*****    IN WHICH THE FORMAT STATEMENT IS CONTAINED IN                 H3120080
C*****    AN ARRAY                                                      H3120090
C*****  RESTRICTIONS OBSERVED                                           H3120100
C*****  * AN H DESCRIPTOR MAY NOT BE PART OF A FORMAT       7.2.3.10/48H3120110
C*****    STATEMENT IN AN ARRAY                                         H3120120
C*****  *  ALL FORMAT STATEMENTS ARE LABELED                 7.2.3  /57H3120130
C*****  *  H AND X DESCRIPTORS ARE NEVER REPEATED            7.2.3.3/54H3120140
C*****  *  FOR W.D DESCRIPTORS, D IS ALWAYS SPECIFIED AND    7.2.3.1/31H3120150
C*****    W IS EQUAL TO OR GREATER THAN D                    7.2.3.1/33H3120160
C*****  *  FIELD WIDTH IS NEVER ZERO                         7.2.3  /18H3120170
C*****  *  IF THERE IS AN I/O LIST, THE FORMAT STATEMENT      7.2.3.4/22H3120180
C*****    CONTAINS AT LEAST ONE FIELD DESCRIPTOR (OTHER                 H3120190
C*****    THAN H OR X)                                                  H3120200
C*****  *  ITEMS IN I/O LIST CORRESPOND TO FORMAT DESCRIPTORS 7.2.3.4/36H3120210
C*****  *  NEGATIVE OUTPUT VALUES ARE SIGNED                 7.2.3.6/56H3120220
C*****  *  FIELD WIDTH NEVER EXCEEDED BY OUTPUT              7.2.3.6/01H3120230
C*****  *  FOR I CONVERSION, EXTERNAL INPUT FIELDS ARE     7.2.3.6.1/07H3120240
C*****    INTEGER CONSTANTS                                             H3120250
C*****  TEST HOLLERITH IN ARGUMENT OF A CALL                            H3120260
C*****     ARRAY NAME IN ARGUMENT LIST USED AS FORMAT SPECIFIER         H3120270
C*****     SUBROUTINE FMTQ ALSO TESTS THE EMPTY FORMAT STATEMENT        H3120280
C*****    THE FOLLOWING DATA STATEMENTS INITIALIZE SOME     7.2.3.10/50H3120290
C*****    ARRAYS WITH FORMAT STATEMENTS TO BE USED FOR                  H3120300
C*****    READING WITH A, F AND D CONVERSION AND FOR                    H3120310
C*****    WRITING WITH I, E AND L CONVERSION                            H3120320
C*****                                                                  H3120330
C INPUT DATA TO THIS SEG. CONSISTS OF 13 CARD IMAGES IN COLS. 1 - 80     H3120340
C     COLS. 1----------------------------------------------50            H3120350
CARD 1      (I5,6X,  I4, 2(I3),  I2)                                    H3120360
CARD 2      (E   9.2,3(E13.6))                                          H3120370
CARD 3      ( L1 ,2(L2),L3)                                             H3120380
CARD 4      (2X,A2,5(A2))                                               H3120390
CARD 5      (2X,F5.3,   F4.0, 2(F7.2))                                  H3120400
CARD 6      (2X , D 16.9,D9.2)                                          H3120410
CARD 7       4756       -867224+39-6                                   H3120420
CARD 8      23498.-77.27547.18                                          H3120430
CARD 9      -.0076+11+08.93421E-13  893.421E-15+08.93421E-13            H3120440
CARD 10     -0.357901246D+00 +0.52D-2                                   H3120450
CARD 11     TTA FF9$                                                    H3120460
CARD 12     AB                                                          H3120470
CARD 13       CDE+*=123                                                 H3120480
CARD COLS. NOT MENTIONED ARE BLANK                                      H3120490
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C*****                                                                  H3120500
C*****  S P E C I F I C A T I O N S  SEGMENT 312                        H3120510
C*****                                                                  H0016255
C*****  WHEN EXECUTING ONLY SEGMENT 312, THE SPECIFICATION STATEMENTS   H0016260
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                H0016265
C*****  IN COLUMNS  1  AND  2  REMOVED.                                 H0016270
C*****                                                                  H0016275
C=     DIMENSION  L1I(10),A3S(3,3,3),YER1S(7),IAC1I(5),AC1S(25)         H0016280
C=     DIMENSION 2U3S(3,2,2),2T1S(4),2U1S(12),ZU2S(4,2),IAC2I(2,7)      H0016285
C=     INTEGER AVI,IU2I(4,2),IT3I(4,2,2),IU3I(2,3,3),MCA3I(2,3,3)       H0016290
C=     LOGICAL AV8,BV8,CV8,GG1B(2),A1B(2)                               H0016295
C=     DOUBLE PRECISION DPAVD,DPBVD,DPCVD,A1D(4)                        H0016300
C=     COMPLEX CHAVC,CHBVC                                              H0016305
C*****                                                                  H0016310
C*****  I N P U T - O U T P U T  TAPE ASSIGNMENT STATEMENTS             H3120520
C*****                                                                  H0076215
C*****  WHEN EXECUTING ONLY SEGMENT 312, THE FOLLOWING STATEMENTS       H0076220
C*****  NUVI=6 AND IRVI=5 MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.  H0076225
C*****                                                                  H0076230
C=     NUVI = 6                                                         H0076235
C=     IRVI = 5                                                         H0076240
C*****                                                                  H0076245
      DATA IU2I(1,1),IU2I(2,1),IU2I(3,1),IU2I(4,1),IU2I(1,2),IU2I(2,2),  H3120530
     1     IU2I(3,2)/2H(A,2H2/,2H2X,2H,5,2H(A,2H2),1H) /                 H3120540
      DATA 2U1S(1),ZU1S(2),ZU1S(3),2U1S(4),ZU1S(5),2U1S(6),ZU1S(7),      H3120550
     1     ZU1S(8),ZU1S(9),ZU1S(10),ZU1S(11),ZU1S(12)  /                 H3120560
     2     2H( ,2H  ,2HF3,2H.3,1H,,2HF3,2H.0,2H, ,2H2(,2HF6,2H.2,2H)) /  H3120570
      DATA IU3I(1,1,1),IU3I(2,1,1),IU3I(1,2,1),IU3I(2,2,1),IU3I(1,3,1),  H3120580
     1     IU3I(2,3,1),IU3I(1,1,2),IU3I(2,1,2) /                         H3120590
     2     2H( ,2H D,2H16,2H.9,2H, ,1HD,2H9.,2H2) /                      H3120600
      DATA IT3I(1,1,1),IT3I(2,1,1),IT3I(3,1,1),IT3I(4,1,1),IT3I(1,2,1),  H3120610
     1     IT3I(2,2,1),IT3I(3,2,1),IT3I(4,2,1),IT3I(1,1,2),IT3I(2,1,2),  H3120620
     2     IT3I(3,1,2),IT3I(4,1,2),IT3I(1,2,2)  /2H(2,2HX,,2HI5,2H,1,    H3120630
     3     2HX,,2HI4,2H,I,2H4,,2H1X,2H,I,2H2,,2HI3,1H)  /                H3120640
      DATA ZT1S(1),ZT1S(2),ZT1S(3),ZT1S(4)/2H(E,2H11,2H.2,1H) /          H3120650
      DATA 2U3S(1,1,1),2U3S(2,1,1),2U3S(3,1,1),2U3S(1,2,1),ZU3S(2,2,1),  H3120660
     1     2U3S(3,2,1) / 2H(4,2H(E,2H14,2H.6,2H/),1H)  /                 H3120670
      DATA ZU2S(1,1),ZU2S(2,1),2U2S(3,1),2U2S(4,1),ZU2S(1,2),ZU2S(2,2),  H3120680
     2     2U2S(3,2) / 2H(L,2H3,,2H2(,2HL2,2H),,2HL3,1H)  /              H3120690
C*****    THE FOLLOWING READ STATEMENTS INITIALIZE SOME      7.2.3.10/51H3120700
C*****    ARRAYS WITH FORMAT STATEMENTS TO BE USED FOR                  H3120710
C*****    READING WITH I, E AND L CONVERSIONS AND FOR                   H3120720
C*****    WRITING WITH A, F AND D CONVERSIONS                           H3120730
C*****                                                                  H3120740
      WRITE (NUVI,3120)                                                 H3120750
C*****  CARD 1                                                          H3120760
      READ (IRVI,3121) AC1S(1), AC1S(2), AC1S(3), AC1S(4), AC1S(5),     H3120770
     1     AC1S(6),AC1S(7),AC1S(8),AC1S(9),AC1S(10),AC1S(11),AC1S(12)   H3120780
C*****  CARD 2                                                          H3120790
      READ (IRVI,3122) L1I                                              H3120800
C*****  CARD 3                                                          H3120810
      READ (IRVI,3121) A3S                                              H3120820
C*****  CARD 4                                                          H3120830
      READ (IRVI,3123) YER1S                                            H3120840
C*****  CARD 5                                                          H3120850
      READ (IRVI,3124) MCA3I                                            H3120860
C*****  CARD 6                                                          H3120870
      READ (IRVI,3124) IAC2I                                            H3120880
C*****                                                                  H3120890
C*****                                                                  H3120900
C*****    THE FOLLOWING STATEMENTS MAKE USE OF THE FORMATS              H3120910
C*****    CONTAINED IN THE ARRAYS                                       H3120920
C*****                                                                  H3120930
C*****    READ AND WRITE WITH I CONVERSION USING FORMATS IN ARRAYS      H3120940
      JACVI =  4756                                                     H3120950
      KBCVI = -867                                                      H3120960
      LCCVI = 224                                                       H3120970
      MDCVI = +39                                                       H3120980
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      NECVI = -6                                                        H3120990
C*****  CARD 7 WITH CARD 1 AS FORMAT                                    H3121000
      READ (IRVI,AC1S) AVI, MRRVI, IAC1I(1), IAC1I(2), IAC1I(3)         H3121010
      WRITE (NUVI,3125)                                                 H3121020
      WRITE(NUVI,IT3I)JACVI, KBCVI, LCCVI, MDCVI, NECVI, AVI, MRRVI,    H3121030
     1                    IAC1I(1), IAC1I(2), IAC1I(3)                 H3121040
C*****    READ AND WRITE WITH F CONVERSION USING FORMATS IN ARRAYS      H3121050
      AVS   = .234                                                      H3121060
      BVS   = 98.                                                       H3121070
      CHAVC = (-77.27,+547.18E0)                                        H3121080
C*****  CARD 8 FORMAT IS (F3.3,F3.0,2(F6.2))                            H3121090
      READ (IRVI,2U1S) CVS, DVS, CHBVC                                  H3121100
      WRITE (NUVI,3127)                                                 H3121110
      WRITE (NUVI,MCA3I) AVS, BVS, CHAVC                                H3121120
      WRITE (NUVI,MCA3I) CVS, DVS, CHBVC                                H3121130
C*****    READ AND WRITE WITH E CONVERSION USING FORMATS IN ARRAYS      H3121140
      AVS   = -0.76E+9                                                  H3121150
      BVS   = +08.93421E-13                                             H3121160
C*****  CARD 9 WITH CARD 2 AS FORMAT                                    H3121170
      READ  (IRVI,L1I) ZU3S(2,2,2),CVS,DVS,2U3S(1,2,2)                  H3121180
      WRITE (NUVI,3128)                                                 H3121190
      WRITE(NUVI,2T1S) AVS, 2U3S(2,2,2)                                 H3121200
      WRITE (NUVI,3129)                                                 H3121210
      WRITE (NUVI, ZU3S) BVS,ZU3S(1,2,2),CVS, DVS                       H3121220
C*****    READ AND WRITE WITH D CONVERSION USING FORMATS IN ARRAYS      H3121230
      DPAVD = -0.3579012460+00                                          H3121240
      DPBVD = +.00052D+1                                                H3121250
C*****  CARD 10 FORMAT IS  (D16.9,D9.2)                                 H3121260
      READ  (IRVI,IU3I) A1D(1), DPCVD                                   H3121270
      WRITE (NUVI,9930)                                                 H3121280
      WRITE (NUVI,IAC2I) DPAVD,DPBVD,A1D(1),DPCVD                       H3121290
C*****    READ AND WRITE WITH L CONVERSION USING FORMATS IN ARRAYS      H3121300
      AVB = .TRUE.                                                      H3121310
      BVB = .FALSE.                                                     H3121320
C*****  CARD 11 WITH CARD 3 AS FORMAT                                   H3121330
      READ  (IRVI,A3S) A1B(1), A1B(2), CVB, GG1B(2)                     H3121340
      WRITE (NUVI,9931)                                                 H3121350
      WRITE (NUVI, 2U2S) AVB, AVB, BVB, BVB                             H3121360
      WRITE (NUVI,ZU2S) A1B(1), A1B(2), CVB, GG1B(2)                    H3121370
C*****    READ AND WRITE WITH A CONVERSION USING FORMATS IN ARRAYS      H3121380
C*****  CARDS 12 AND 13 FORMAT IS (A2/2X,5(A2))                         H3121390
      READ  (IRVI,IU2I) JACVI, AVS, IAC1I(1), GG1B, BVB                 H3121400
      WRITE (NUVI,3126)                                                 H3121410
      WRITE (NUVI,YER1S) JACVI, AVS, IAC1I(1), GG1B, BVB                H3121420
C*****                                                                  H3121430
      CALL FMTQ (NUVI,2T1S,0.9999,2HH0,2HLL,2HER,2HIT,2HH ,2HCO,2HNS,   H3121440
     1     2HTA,2HNT,2HS ,2HAS,2H C,2HAL,2HL ,2HAR,2HGU,2HME,2HNT,1HS)  H3121450
C*****                                                                  H3121460
C*****    ADDITIONAL FORMAT STATEMENTS REQUIRED BY THIS SEGMENT         H3121470
C*****                                                                  H3121480
C*****    THE FOLLOWING FORMAT STATEMENTS ARE USED TO        7.2.3.10/51H3121490
C*****    READ FORMATS INTO ARRAYS                                      H3121500
3121  FORMAT (27(A2))                                                   H3121510
3122  FORMAT (10(A2))                                                   H3121520
3123  FORMAT ( 7(A2))                                                   H3121530
3124  FORMAT (18(A2))                                                   H3121540
C*****    THE FOLLOWING ARRAYS ARE USED TO WRITE OUT ALL     7.2.3.10/48H3121550
C*****    HOLLERITH INFORMATION, SINCE H FIELD DESCRIPTORS              H3121560
C*****    MAY NOT BE PART OF A FORMAT WITHIN AN ARRAY                   H3121570
3120  FORMAT (1H1,1X,31HRDFMT - (312) FORMATS IN ARRAYS//               H3121580
     1  42H  ASA REFS. - 7.2.3.10//34H  EACH GROUP OF LINES SHOULD MATCH)H3121590
3125  FORMAT (/ 22H    4756 -867 224 39 -6)                             H3121600
3126  FORMAT (/ 13H  ABCDE+*=123)                                       H3121610
3127  FORMAT (/ 25H  0.234 98. -77.27 547.18)                           H3121620
3128  FORMAT (/11H  -0.76E+09)                                          H3121630
3129  FORMAT (/14H  0.893421E-12)                                       H3121640
9930  FORMAT (/ 27H  -0.3579012460+00 0.52D-02)                         H3121650
9931  FORMAT (/ 10H  T T F  F)                                          H3121660
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C*****    END OF TEST SEGMENT 312                                        H3121670
C*****  WHEN EXECUTING ONLY SEGMENT 312, THE  STOP  AND  END  CARDS      H3121680
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H3121690
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H3121700
C=    STOP                                                               H3121710
C=    END                                                                H3121720
      STOP                                                               H9999995
      END                                                                H9999999
C***********************************************************************H4110010
C*****                                                                   H4110020
C*****                       SMCQ  - (411)                               H4110030
C*****                                                                   H4110040
C***********************************************************************H4110050
C*****  GENERAL PURPOSE                                                  H4110060
C*****    TO DEFINE SUBROUTINE SMCQ WHICH IS USED IN SEGMENT 300         H4110070
      SUBROUTINE SMCQ(MWVI)                                              H4110080
      MWVI = MWVI + 5                                                    H4110090
      RETURN                                                             H4110100
C*****    END OF TEST SEGMENT 411                                        H4110110
      END                                                                H4110120
C***********************************************************************H4620010
C*****                                                                   H4620020
C*****                       FMTQ - (462)                                H4620030
C*****                                                                   H4620040
C***********************************************************************H4620050
C*****  GENERAL PURPOSE                                                  H4620060
C*****    TO DEFINE SUBROUTINE FMTQ WHICH IS USED IN SEGMENT 312         H4620070
C*****    TO TEST FORMAT IN AN ARRAY PASSED AS AN ARGUMENT, AN           H4620080
C*****            EMPTY FORMAT STATEMENT, AND                            H4620090
C*****            HOLLERITH IN A CALL ARGUMENT                           H4620100
      SUBROUTINE FMTQ(NWVI,ZTW1S,AWVS,IWVH,JWVH,KWVH,LWVH,MWVH,NWVH,     H4620110
     1                 IIWVH,JJWVH,KKWVH,LLWVH,MMWVH,NNWVH,IJWVH,IKWVH,  H4620120
     2                 ILWVH,IMWVH,INWVH,JIWVH,JKWVH)                    H4620130
      DIMENSION ZTW1S(4)                                                 H4620140
      WRITE (NWVI, 4620)                                                 H4620150
4620  FORMAT(/11H   +.10E+01 )                                           H4620160
C*****FORMAT LABELED ZTW1S PASSED AS ARGUMENT IS  (E11.2)                 H4620170
      WRITE (NWVI, ZTW1S) AWVS                                           H4620180
      WRITE (NWVI, 4621)                                                 H4620190
4621  FORMAT(/39H  HOLLERITH CONSTANTS AS CALL ARGUMENTS )                H4620200
      WRITE (NWVI,4622)  IWVH, JWVH,KWVH,LWVH,MWVH,NWVH,IIWVH,JJWVH,     H4620210
     1                   KKWVH, LLWVH,MMWVH,NNWVH,IJWVH,IKWVH,ILWVH,     H4620220
     2                   IMWVH,INWVH,JIWVH,JKWVH                         H4620230
4622  FORMAT(2X, 19A2)                                                   H4620240
      WRITE (NWVI,4623)                                                  H4620250
4623  FORMAT(//29H  TEST EMPTY FORMAT STATEMENT /                        H4620260
     136H  THE FOLLOWING LINE SHOULD BE BLANK )                          H4620270
      WRITE(NWVI,4624)                                                   H4620280
4624  FORMAT( )                                                          H4620290
      WRITE(NWVI,4625)                                                   H4620300
4625  FORMAT(23H  END EMPTY FORMAT TEST //22H  END SEGMENT 312 TEST )    H4620310
      RETURN                                                             H4620320
      END                                                                H4620330
 SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
 DO NOT READ OR WRITE RECORD 2. DOUBLE SPACE ON OUTPUT  ID 2
 OPERATING SYSTEM VERSION
 DO NOT READ OR WRITE RECORD 4. DOUBLE SPACE ON OUTPUT  ID 4
 DATE, INSTALLATION NAME
 DO NOT READ OR WRITE RECORD 6. DOUBLE SPACE ON OUTPUT  ID 6
                        .  .   .  0.   E+00         +          + .   E00
              +           + .      D+00     .        D0
1.23456987654.   +1.234E-0 -98.7654E+0   + 2345.67891011+2          -.109876-4
12345
12345
12345
12345
12345
1.1
```

```
1.1
1.1
1.1
+0.339567E+02
  + .339567+2
 + 3.395670E1
 0.96295134244D+04
    .96295134244D04
   0.96295134244+4
 0.96295134244D+04
31.23+0.14E+04+0.2D+02
31.23  .14E+04   +.2+2
-0.13579E+054444
4444
4444
4444
4444
-333 5.555+0.4545E-04
-6.666  .9989E+12
7.77-0.747E-02  +0.549E022
+0.662E-00  0.468-1011
 0.59542D+04-44.6666-0.1234567890D-03
 54.9327-0.1395624534D+00
65432.1
+0.848E+03    .848E3 + .1290D7+0.129D+07  0.412D21
22222222222222222222222222222222222222222222222222
   -.987E0-0.987E+00    +0.6D0 + 0.6D+00   .368D-5
   5   5   5   5
    987654   8647.86   987.654
(I5,6X, I4, 2(I3),  I2)
(E   9.2,3(E13.6))
( L1 , 2(L2),L3)
(2X,A2,5(A2))
(2X,F5.3,   F4.0, 2(F7.2))
(2X , D 16.9,D9.2)
 4756       -867224+39-6
23498.-77.27547.18
-.0076+11+08.93421E-13  893.421E-15+08.93421E-13
-0.3579012460+00 +0.52D-2
TTA FF9$
AB
  CDE+*=123
C*****    PART14    **************************************************H0006400
C*****                                                                H0006405
C*****    ANSI FORTRAN   (X3.9-1966)     TEST PROGRAMS                H0006410
C*****                                                                H0006415
C*****    PREPARED BY THE NATIONAL BUREAU OF STANDARDS      VERSION 3  H0006420
C*****                                                                H0006425
C*****    JUNE 1973                                                   H0006430
C*****                                                                H0006435
C*****    PART 14 OF 14 PARTS                                         H0006440
C*****                                                                H0006445
C*****    SEGMENTS INCLUDED                                           H0006450
C*****                                                                H0006455
C*****    MISC5 - 350  SPECIFICATIONS FOR PROGRAM FORM                H0006460
C*****                                                                H0006465
C*****    FUNMX - 351  BASIC EXTERNAL FUNCTIONS USING TRIG FORMULAS   H0006470
C*****                                                                H0006475
C*****    NAMES - 352  NAMES RESEMBLE FORTRAN VERBS AND FUNCTION NAMES H0006480
C*****                                                                H0006485
C*****      MAQQ - 413  SUBROUTINE CALLED FROM NAMES                  H0006490
C*****                                                                H0006495
C*****      MBQQ - 463  SUBROUTINE CALLED FROM NAMES                  H0006500
C*****                                                                H0006505
C*****      AMQQ - 473  SUBROUTINE CALLED FROM NAMES                  H0006510
C*****                                                                H0006515
C*****      BMQQ - 483  SUBROUTINE CALLED FROM NAMES                  H0006520
C*****                                                                H0006525
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C*****    SPEC2 - 360  COMMON, DIMENSION, EQUIVALENCE                    H0006530
C*****                                                                   H0016400
C*****  THE FOLLOWING SPECIFICATIONS ARE TO BE USED ONLY WHEN SEGMENTS   H0016405
C*****  350, 351, 352, 360  ARE RUN AS ONE MAIN PROGRAM.                 H0016410
C*****                                                                   H0016415
      DIMENSION J(2), JJ(1,1), JJJ(1,1,1), JJJJ(1,1),                    H0016420
     1  JJJJJ(1), JJJJJJ(1)                                              H0016425
      DIMENSION GOTO(2,2), IF(5)                                         H0016430
      DIMENSION MX1I(3), TX1S(3)                                         H0016435
      DIMENSION MMY1I(400),NNY3I(20,10,2)                                H0016440
      DIMENSION MX2I(2,3), TX2S(2,2), WAZ2S(3,2), RVY1S(2), RVY2S(1,2)   H0016445
      DIMENSION JY2I(2,2), JY1I(5), NZ1I(4), NZ2I(4,2), WAZ1S(2)         H0016450
      COMMON MX1I, MX2I, NZ1I, NZVI, NZ2I                                H0016455
      COMMON MXVI                                                        H0016460
      COMMON IAXVI                                                       H0016465
      COMMON WAZ1S                                                       H0016470
      COMMON TX1S, TX2S, JBZVI, WAZ2S                                    H0016475
      EQUIVALENCE (MMY1I(1),NNY3I(1,1,1)),(NZ1I(1),NNY3I(1))             H0016480
      EQUIVALENCE (MYVI,NZVI), (IYVI,NZ1I(1)), (NZ2I(4,1), JYVI)         H0016485
      EQUIVALENCE (NZ2I(3), KYVI), (AAYVS,JBZVI,JY2I(1), RVY1S(2))       H0016490
      EQUIVALENCE (RVY2S(1,1),WAZ1S(2))                                  H0016495
      EQUIVALENCE (JY1I(3),RVY1S(2))                                     H0016500
      EQUIVALENCE (WAZ2S(1),BBYVS,CCYVS), (WAZ2S(2,1),DDYVS)             H0016505
C*****  END OF SPECIFICATIONS FOR SEGMENTS 350, 351, 352, 360            H0016510
C*******************************************************************************H3500010
C*****                                                                   H3500020
C*****                          MISC5 - (350)                            H3500030
C*****                                                                   H3500040
C*******************************************************************************H3500050
C*****  GENERAL PURPOSE                                          ASA REFH3500060
C*****    TO TEST SPECIFICATIONS FOR PROGRAM FORM                3.2     H3500070
C*****                                                           3.2.1   H3500080
C*****                                                           3.4     H3500090
C*****                                                           3.5     H3500100
C*****  GENERAL COMMENTS                                                 H3500110
C*****  * AMONG OTHER THINGS, THIS SEGMENT TESTS THAT COMMENTS ARE       H3500120
C*****    NOT EXECUTED AND, AS A RESULT OF THIS TEST, THE COMPILER       H3500130
C*****    MAY GENERATE SOME WARNING MESSAGES.                            H3500140
C*****  * BECAUSE OF THE NATURE OF THE TESTS BEING PERFORMED, SOME       H3500150
C*****    LABELS AND NAMES DO NOT FOLLOW THE CONVENTIONS                 H3500160
C*****    SPECIFIED IN THE USERS MANUAL.                                 H3500170
C*****                                                                   H3500180
C*****  S P E C I F I C A T I O N S  SEGMENT 350                         H3500190
C*****                                                                   H0016515
C*****  WHEN EXECUTING ONLY SEGMENT 350, REMOVE THE PRECEDING            H0016520
C*****  SPECIFICATIONS.  THE FOLLOWING SPECIFICATIONS, WHICH APPEAR      H0016525
C*****  AS COMMENT CARDS MUST HAVE THE C=  IN COLUMNS 1 AND 2 REMOVED.   H0016530
C*****                                                                   H0016535
C=    DIMENSION J(2), JJ(1,1), JJJ(1,1,1), JJJJ(1,1),JJJJJ(1), JJJJJJ(1)H0016540
C*****                                                                   H0016545
C*****  I N P U T - O U T P U T  T A P E ASSIGNMENT STATEMENTS.          H3500200
      IRVI = 5                                                           H0076400
      NUVI = 6                                                           H0076405
C*****  IDENTIFY THE SOURCE OF THE TEST PROGRAMS                         H0076410
      WRITE(NUVI,0071)                                                   H0076415
0071  FORMAT (41H1 F O R T R A N  T E S T  P R O G R A M S//             H0076420
     1 42H  PREPARED BY NATIONAL BUREAU OF STANDARDS//                   H0076425
     3 37H  FOR USE ON LARGE FORTRAN PROCESSORS  //                      H0076430
     4 42H  IN ACCORDANCE WITH ASA FORTRAN X3.9-1966//                   H0076435
     5 23H  VERSION 3     PART 14///)                                   H0076440
C*****  3 OF 6 INPUT CARDS IDENTIFY THE USERS SYSTEM AND COMPILER        H0076445
C       PREPARED BY USER                                                 H0076450
C       READ, NO LIST                                                    H0076455
C       PREPARED BY USER                                                 H0076460
C       READ, NO LIST                                                    H0076465
C       PREPARED BY USER                                                 H0076470
C       READ, NO LIST                                                    H0076475
      READ(IRVI,0070)                                                    H0076480
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      READ(IRVI,0072)                                                   H0076485
      READ(IRVI,0073)                                                   H0076490
0070  FORMAT(40H   BASED ON ASA FORTRAN X3.9-1966          /)           H0076495
0072  FORMAT(40H   TEST PROGRAMS                          /)           H0076500
0073  FORMAT(40H   FORTRAN COMPILER                       /)           H0076505
      WRITE(NUVI,0070)                                                  H0076510
      WRITE(NUVI,0072)                                                  H0076515
      WRITE(NUVI,0073)                                                  H0076520
      WRITE (NUVI,3500)                                                 H3500210
3500  FORMAT (1H1,1X,32HMISC5 - (350) SPECIFICATIONS FOR/ 16X,     12HPROH3500220
     1GRAM FORM//2X,32HASA REFS. - 3.2  3.2.1  3.4  3.5//               H3500230
     2 2X,35HTEST THAT COMMENTS ARE NOT EXECUTED)                       H3500240
C*****    HEADER FOR SEGMENT 350 WRITTEN                               H3500250
C*****    TEST THAT COMMENTS ARE NOT EXECUTED                3.2.1/36H3500260
C*****WRITE (NUVI,3501)                                                 H3500270
3501  FORMAT  (2X,34HERROR - COMMENT STATEMENT EXECUTED)                H3500280
C*****GO TO 3504                                                        H3500290
3502  MRRVI = 0                                                         H3500300
C*****IF (MRRVI) 3504, 3504, 3504                                       H3500310
3503  MRRVI = 1                                                         H3500320
C*****MRRVI = -1                                                        H3500330
      IF (MRRVI) 3504,3504,3505                                         H3500340
3504  WRITE (NUVI,3501)                                                 H3500350
3505  WRITE (NUVI,3506)                                                 H3500360
3506  FORMAT  (2X,35HTEST SUCCESSFUL IF NO ERROR MESSAGE)               H3500370
      GO TO 3509                                                        H3500380
C*****    TEST THAT ALL 72 CHARACTERS IN A LINE MAY BE USED      3.2/24H3500390
3509  WRITE (NUVI,8100)                                                 H3500400
8100  FORMAT(///2X,22HTEST 72 CHARACTER LINE)                           H3500410
      WRITE (NUVI,8101)                                                 H3500420
8101 0FORMAT( /2X,29H123456789101112131415161718l9/2X,29H123456789101112H3500430
     1131415161718l9)                                                   H3500440
      WRITE (NUVI,8102)                                                 H3500450
8102  FORMAT ( /2X,36HTEST SUCCESSFUL IF 2 LINES ABOVE ARE/2X,19HDIGITS H3500460
     11 THROUGH 19)                                                     H3500470
C*****    TEST THAT STATEMENT LABELS MAY BE 1, 2, 3, 4 OR 5      3.4/12H3500480
C*****    DIGITS LONG                                                  H3500490
      WRITE (NUVI,8112)                                                 H3500500
8112  FORMAT (//2X,37HTEST 1,2,3,4,5 CHARACTER STMNT. LABEL/)           H3500510
      GO TO 1                                                           H3500520
8113  GO TO 22                                                          H3500530
8114  GO TO 333                                                         H3500540
8115  GO TO 8099                                                        H3500550
8097  GO TO 22255                                                       H3500560
1     MRRVI = 1                                                         H3500570
      WRITE (NUVI,8118) MRRVI                                           H3500580
      GO TO 8113                                                        H3500590
22    MRRVI = 2                                                         H3500600
      WRITE (NUVI,8118) MRRVI                                           H3500610
      GO TO 8114                                                        H3500620
333   MRRVI = 3                                                         H3500630
      WRITE (NUVI,8118) MRRVI                                           H3500640
      GO TO 8115                                                        H3500650
8099  MRRVI = 4                                                         H3500660
      WRITE(NUVI, 8118) MRRVI                                           H3500670
      GO TO 8097                                                        H3500680
22255 MRRVI = 5                                                         H3500690
      WRITE (NUVI,8118) MRRVI                                           H3500700
8118  FORMAT (  2X,I1,1X,24HCHARACTER LABEL ACCEPTED)                   H3500710
C*****    TEST THAT VARIABLE AND ARRAY NAMES MAY BE              3.5/21H3500720
C*****    1, 2, 3, 4 OR 5 CHARACTERS LONG                              H3500730
      WRITE (NUVI,8098)                                                 H3500740
8098  FORMAT (//2X,36HTEST 1,2,3,4,5,6 CHARACTER VARIABLES/2X,          H3500750
     115HAND ARRAY NAMES)                                               H3500760
      M = 1                                                             H3500770
      MM = 1                                                            H3500780
      MMM = 1                                                           H3500790
      MMMM = 1                                                          H3500800
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      MMMMM = 1                                                          H3500810
      MMMMMM = 1                                                         H3500820
      J(1) = 1                                                           H3500830
      JJ(1,1) = 1                                                        H3500840
      JJJ(1,1,1) = 1                                                     H3500850
      JJJJ(1,1) = 1                                                      H3500860
      JJJJJ(1) = 1                                                       H3500870
      JJJJJJ(1) = 1                                                      H3500880
      IF (M-1) 8119, 8103, 8119                                          H3500890
8103  IF (MM-1) 8119,8104,8119                                           H3500900
8104  IF (MMM-1) 8119,8105,8119                                          H3500910
8105  IF (MMMM-1) 8119, 8106,8119                                        H3500920
8106  IF (MMMMM-1) 8119,8096,8119                                        H3500930
8096  IF (MMMMMM-1) 8119, 8107, 8119                                     H3500940
8107  IF (J(1)-1) 8119,8108,8119                                         H3500950
8108  IF (JJ(1,1)-1) 8119,8109,8119                                      H3500960
8109  IF (JJJ(1,1,1)-1) 8119,8110,8119                                   H3500970
8110  IF (JJJJ(1,1)-1) 8119,8111,8119                                    H3500980
8111  IF (JJJJJ(1)-1) 8119,8095,8119                                     H3500990
8095  IF (JJJJJJ(1)-1) 8119,8121,8119                                    H3501000
8119  WRITE (NUVI,8120)                                                  H3501010
8120  FORMAT (/ 2X,21H**TEST UNSUCCESSFUL**)                             H3501020
      GO TO 8123                                                         H3501030
8121  WRITE (NUVI,8122)                                                  H3501040
8122  FORMAT (/ 2X,38H**TEST SUCCESSFUL-ALL NAMES ACCEPTED**)            H3501050
C*****    TEST THAT STATEMENT LABELS MAY BE PLACED              3.4/13H3501060
C*****    ANYWHERE IN COLUMNS 1 TO 5 AND THAT LEADING           3.4/17H3501070
C*****    ZEROS ON STATEMENT LABELS ARE NOT SIGNIFICANT                  H3501080
8123  WRITE (NUVI,8116)                                                  H3501090
8116  FORMAT (//2X,34HTEST PLACEMENT OF STATEMENT LABELS/2X,             H3501100
     1 29HAND LABELS WITH LEADING ZEROS/)                                H3501110
      MRRVI = 1                                                          H3501120
      GO TO 10                                                           H3501130
 2    MRRVI = 2                                                          H3501140
      GO TO 010                                                          H3501150
  3   MRRVI = 3                                                          H3501160
      GO TO 0010                                                         H3501170
   4  MRRVI = 4                                                          H3501180
      GO TO 0010                                                         H3501190
    5 MRRVI = 5                                                          H3501200
      GO TO 0010                                                         H3501210
06    MRRVI = 6                                                          H3501220
      GO TO 0010                                                         H3501230
007   MRRVI = 7                                                          H3501240
      GO TO 0010                                                         H3501250
0008  MRRVI = 8                                                          H3501260
      GO TO 0010                                                         H3501270
 0009 MRRVI = 9                                                          H3501280
 0010 WRITE (NUVI,11) MRRVI                                              H3501290
011   FORMAT ( I10)                                                      H3501300
      GO TO (02,3,004,0005,6,7,8,009,8117), MRRVI                        H3501310
8117  WRITE (NUVI,012)                                                   H3501320
 12   FORMAT (//2X,28HTEST SUCCESSFUL IF 9 NUMBERS/2X,                   H3501330
     1 31HIN SEQUENTIAL ORDER FROM 1 TO 9/2X,                            H3501340
     2 17HARE WRITTEN ABOVE///2X,18HEND OF SEGMENT 350)                  H3501350
C*****    END OF TEST SEGMENT 350                                        H3501360
C*****  WHEN EXECUTING ONLY SEGMENT 350, THE  STOP  AND  END  CARDS      H3501370
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                  H3501380
C*****  IN COLUMNS  1  AND  2  REMOVED.                                  H3501390
C=    STOP                                                               H3501400
C=    END                                                                H3501410
C*************************************************************************H3510010
C*****                                                                  H3510020
C*****                          FUNMX - (351)                           H3510030
C*****                                                                  H3510040
C*************************************************************************H3510050
C*****  GENERAL PURPOSE                                      ASA REF    H3510060
C*****    THIS SEGMENT FURTHER TESTS SOME                    8.3.3      H3510070
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C*****     BASIC EXTERNAL FUNCTIONS BY USING TRIGONOMETRIC                H3510080
C*****     FORMULAE                                                       H3510090
C*****                                                                    H3510100
C*****  O U T P U T  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H3510110
C*****                                                                    H0076525
C*****  WHEN EXECUTING ONLY SEGMENT 351, THE FOLLOWING STATEMENT          H0076530
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.            H0076535
C*****                                                                    H0076540
C=     NUVI = 6                                                           H0076545
C*****                                                                    H0076550
       WRITE (NUVI,3510)                                                  H3510120
3510   FORMAT (1H1,2X,13HFUNMX - (351)//1X,22H THIS SEGMENT FURTHER       H3510130
      1  5HTESTS                          /21H  SOME BASIC EXTERNAL,      H3510140
      2 10H FUNCTIONS /33H  BY USING TRIGONOMETRIC FORMULAE//             H3510150
      319H  ASA REFS. - 8.3.3//2X,7HRESULTS)                              H3510160
C*****     HEADER FOR SEGMENT 351 WRITTEN                                 H3510170
C*****     TEST STATEMENTS USING ORDINARY TRIGONOMETRIC FUNCTIONS         H3510180
       CMAVS = 1.75                                                       H3510190
       CMCVS = ALOG(EXP(CMAVS)) - 1.75                                    H3510200
       CMDVS = EXP(ALOG(CMAVS)) - 1.75                                    H3510210
       CMEVS = (SIN(2.0)) ** 2 + (COS(2.0)) ** 2 - 1.0                    H3510220
       CMFVS = (1.0/COS(1.2)) ** 2 -((SIN(1.2) / COS(1.2)) ** 2) - 1.0    H3510230
       WRITE (NUVI,3511) CMCVS, CMDVS, CMEVS, CMFVS                       H3510240
       CMCVS = SIN(.78) - SQRT(1. - COS(0.78) ** 2)                       H3510250
       CMDVS = COS(1.57) - SQRT(1.0 - SIN(1.57) ** 2)                     H3510260
       CMEVS = SQRT((1.0/COS(0.5236))**2-1.0)-SIN(0.5236)/COS(0.5236)     H3510270
       CMFVS = ATAN2(SIN(0.5),COS(0.5)) - 0.5                             H3510280
       WRITE (NUVI,3511) CMCVS, CMDVS, CMEVS, CMFVS                       H3510290
C*****     TEST STATEMENTS USING HYPERBOLIC FUNCTIONS                     H3510300
       CMAVS = EXP(1.85)                                                  H3510310
       CMBVS = EXP(-1.85)                                                 H3510320
       CMCVS = TANH(1.85) - ((CMAVS - CMBVS) / (CMAVS + CMBVS))           H3510330
       CMEVS = 2./(EXP(1.05) + EXP(-1.05)) - SQRT(1.0-TANH(1.05)**2)      H3510340
       CMFVS = TANH(2.01)/ (SQRT(1.0 - TANH(2.01)**2))-.5*(EXP(2.01) -    H3510350
      1 EXP(-2.01))                                                       H3510360
       WRITE (NUVI,3512) CMCVS, CMEVS, CMFVS                              H3510370
       WRITE (NUVI,3513)                                                  H3510380
3511   FORMAT (//4(F15.5/))                                               H3510390
3512   FORMAT (//3(F15.5/))                                               H3510400
3513   FORMAT (//39H  ALL ABOVE ANSWERS SHOULD BE 0 PLUS OR /             H3510410
      1  40H  MINUS AN ERROR FACTOR OF NOT MORE THAN /                    H3510420
      2 12H  10 ** (-4))                                                  H3510430
C*****     END OF TEST SEGMENT 351                                        H3510440
C*****  WHEN EXECUTING ONLY SEGMENT 351, THE  STOP  AND  END  CARDS       H3510450
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                   H3510460
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H3510470
C=     STOP                                                               H3510480
C=     END                                                                H3510490
C*******************************************************************************H3520010
C*****                                                                    H3520020
C*****                          NAMES - (352)                             H3520030
C*****                                                                    H3520040
C*******************************************************************************H3520050
C*****  GENERAL PURPOSE                                          ASA REF  H3520060
C*****     TO TEST THE CAPABILITY OF COMPILERS TO IDENTIFY DATA 10.1.7/54H3520070
C*****     NAMES THAT RESEMBLE FORTRAN VERBS AND/OR PREDEFINED            H3520080
C*****     FUNCTION NAMES.                                                H3520090
C*****  GENERAL COMMENTS                                                  H3520100
C*****     BECAUSE OF THE NATURE OF THIS TEST SEGMENT, NAMING             H3520110
C*****     CONVENTIONS THAT EXISTED IN OTHER SEGMENTS WILL NOT            H3520120
C*****     BE OBSERVED.                                                   H3520130
C*****                                                                    H3520140
C*****  S P E C I F I C A T I O N S  SEGMENT 352                          H3520150
C*****                                                                    H0016550
C*****  WHEN EXECUTING ONLY SEGMENT 352, THE SPECIFICATION STATEMENTS     H0016555
C*****  WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                  H0016560
C*****  IN COLUMNS  1  AND  2  REMOVED.                                   H0016565
C*****                                                                    H0016570
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C=     DIMENSION GOTO(2,2), IF(5)                                       H0016575
C*****                                                                  H0016580
C*****  O U T P UT  T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.       H3520160
C*****                                                                  H0076555
C*****  WHEN EXECUTING ONLY SEGMENT 352, THE FOLLOWING STATEMENT        H0076560
C*****  NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 AND 2 REMOVED.          H0076565
C*****                                                                  H0076570
C=     NUVI = 6                                                         H0076575
C*****                                                                  H0076580
       WRITE (NUVI,3520)                                                H3520170
3520   FORMAT (1H1 ,1X,13HNAMES - (352)//2X,36HTEST OF THE COMPILERS CAPAH3520180
      1BILITY OF /2X,37HIOENTIFYING OATA NAMES THAT RESEMBLE /2X,       H3520190
      2 32HFORTRAN VERBS AND/OR PREDEFINED /2X,15HFUNCTION NAMES //     H3520200
      3 22H  ASA REFS. - 10.1.7/4 //2X,7HRESULTS)                       H3520210
C*****     HEAOER FOR SEGMENT 352 WRITTEN                               H3520220
       INTEG = 0                                                        H3520230
       REAL = 2.0                                                       H3520240
       GOTO5 = REAL - 2.0                                               H3520250
       GOTO(1,2) = 10.0 - 5.0 * 2.0                                     H3520260
       0013I = INTEG                                                    H3520270
    13 D014J = INTEG +0                                                 H3520280
    14 IF(2) = 5-5                                                      H3520290
       CALL = 0                                                         H3520300
       STOP7 = REAL - 2.0                                               H3520310
       PAUSE = REAL / 2.0 - 1.0                                         H3520320
       READ6 = 0.0 ** 5                                                 H3520330
       WRITE = 7.0 - 7.0                                                H3520340
       WRITE (NUVI,3521) GOTO5, GOTO(1,2), D013I, 0014J, IF(2), CALL,   H3520350
      1 STOP7, PAUSE, READ6, WRITE                                      H3520360
3521   FORMAT (//10(F10.5/))                                            H3520370
C*****     TEST THAT THE SAME INTRINSIC FUNCTION NAMES OF               H3520380
C*****     A PROGRAM UNIT OF AN EXECUTABLE PROGRAM CAN BE               H3520390
C*****     USEO TO IOENTIFY SOME OTHER ENTITY IN A OIFFERENT            H3520400
C*****     PROGRAM UNIT OF THAT EXECUTABLE PROGRAM                      H3520410
       MCAVI = IABS(-5)                                                 H3520420
       CALL MAQQ(MCAVI,IVI)                                             H3520430
       MCCVI = IVI                                                      H3520440
       MCBVI = ISIGN(1,-2)                                              H3520450
       CALL MBQQ(MCBVI,IVI)                                             H3520460
       MCOVI = IVI                                                      H3520470
       CMAVS = FLOAT(5 + 7)                                             H3520480
       CALL AMQQ(CMAVS,AVS)                                             H3520490
       CMCVS = AVS                                                      H3520500
       CMBVS = ABS(-10.0 - 8.00)                                        H3520510
       CALL BMQQ(CMBVS,AVS)                                             H3520520
       CMOVS = AVS                                                      H3520530
       WRITE (NUVI,3522) MCCVI, MCDVI, CMCVS, CMOVS                     H3520540
3522   FORMAT (/2(I10/)//2(F10.5/)//35H  ALL ABOVE ANSWERS SHOULO BE 0 FOH3520550
      1R/36H  THIS TEST SEGMENT TO BE SUCCESSFUL)                       H3520560
C*****     ENO OF TEST SEGMENT 352                                      H3520570
C*****  WHEN EXECUTING ONLY SEGMENT 352, THE  STOP  AND  ENO  CARDS     H3520580
C*****  WHICH APPEAR AS COMMENT CAROS MUST HAVE THE  C=                 H3520590
C*****  IN COLUMNS  1  ANO  2  REMOVEO.                                 H3520600
C=     STOP                                                             H3520610
C=     END                                                              H3520620
C*************************************************************************H3600010
C*****                                                                  H3600020
C*****                          SPEC2 - (360)                           H3600030
C*****                                                                  H3600040
C*************************************************************************H3600050
C*****  GENERAL PURPOSE                                    ASA REFS H3600060
C*****  * TO TEST COMMON, OIMENSION AND EQUIVALENCE          7.2.1.2H3600070
C*****     STATEMENTS                                        7.2.1.3H3600080
C*****  *  TO TEST THAT VARIABLES ANO ARRAYS WHICH ARE       7.2.1.4H3600090
C*****     EQUATEO ANO/OR IN COMMON MAY BE USEO IN A                 H3600100
C*****     VARIETY OF FORTRAN STATEMENTS                             H3600110
C*****  RESTRICTIONS OBSERVEO                                        H3600120
C*****  * NO DUMMY ARGUMENTS APPEAR IN COMMON OR EQUIVALENCE  7.2.1.4/40H3600130
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C*****     STATEMENTS                                          8.4.1.1/23H3600140
C*****   * NUMBER OF SUBSCRIPTS IN EQUIVALENCE STATEMENTS                H3600150
C*****     CORRESPONOS TO ARRAY DIMENSIONALITY OR IS ONE       7.2.1.4/09H3600160
C*****   * COMMON NEVER LENGTHENEO BY EQUIVALENCE IN A         7.2.1.4/31H3600170
C*****     BACKWARO OIRECTION                                            H3600180
C*****   * ONLY ONE OF AN EQUATED PAIR OF ITEMS APPEARS        7.2.1.4/36H3600190
C*****     IN COMMON                                                     H3600200
C*****   * VARIABLES ARE NEVER EQUATEO TO MORE THAN ONE        7.2.1.4/42H3600210
C*****     ELEMENT OF THE SAME ARRAY                                     H3600220
C*****   GENERAL COMMENTS                                              H3600230
C*****     THIS SEGMENT FOLLOWS THE ORDER OF SPECIFICATION STATEMENTS   H3600240
C*****     REQUIRED IN BASIC FORTRAN  (SEE 9.1.2/56 IN BASIC ASA BOOK)  H3600250
C*****                                                                   H3600260
C*****   S P E C I F I C A T I O N S  SEGMENT 360                        H3600270
C*****                                                                   H0016585
C*****   WHEN EXECUTING ONLY SEGMENT 360, THE SPECIFICATION STATEMENTS   H0016590
C*****   WHICH APPEAR AS COMMENT CARDS, MUST HAVE THE  C=                H0016595
C*****   IN COLUMNS  1  AND  2  REMOVED.                                 H0016600
C*****                                                                   H0016605
C=       DIMENSION MX1I(3), TX1S(3)                                      H0016610
C=       DIMENSION MX2I(2,3), TX2S(2,2), WAZ2S(3,2), RVY1S(2), RVY2S(1,2) H0016615
C=       DIMENSION JY2I(2,2), JY1I(5), NZ1I(4), NZ2I(4,2), WAZ1S(2)      H0016620
C=       DIMENSION MMY1I(400),NNY3I(20,10,2)                             H0016625
C=       EQUIVALENCE (MMY1I(1),NNY3I(1,1,1)),(NZ1I(1),NNY3I(1))          H0016630
C=       COMMON MX1I, MX2I, NZ1I, NZVI, NZ2I                             H0016635
C=       COMMON MXVI                                                     H0016640
C=       COMMON IAXVI                                                    H0016645
C=       COMMON WAZ1S                                                    H0016650
C=       COMMON TX1S, TX2S, JBZVI, WAZ2S                                 H0016655
C=       EQUIVALENCE (MYVI,NZVI), (IYVI,NZ1I(1)), (NZ2I(4,1), JYVI)     H0016660
C=       EQUIVALENCE (NZ2I(3), KYVI), (AAYVS,JBZVI,JY2I(1), RVY1S(2))   H0016665
C=       EQUIVALENCE (RVY2S(1,1),WAZ1S(2))                               H0016670
C=       EQUIVALENCE (JY1I(3),RVY1S(2))                                  H0016675
C=       EQUIVALENCE (WAZ2S(1),BBYVS,CCYVS), (WAZ2S(2,1),OOYVS)          H0016680
C*****                                                                   H3600280
C*****     SOME OF THE ITEMS DEFINED ABOVE ARE USED IN A VARIETY         H3600290
C*****     OF FORTRAN STATEMENTS                                         H3600300
C*****                                                                   H3600310
C*****     DEFINE THE SYMBOLIC OUTPUT UNIT FOR USE IN THIS     7.1.3/22H3600320
C*****     SEGMENT                                                       H3600330
C*****   O U T P U T - T A P E  ASSIGNMENT STATEMENT.  NO INPUT TAPE.    H3600340
C*****                                                                   H3600350
C*****   WHEN EXECUTING ONLY SEGMENT 360, THE FOLLOWING STATEMENT        H0076585
C*****   NUVI = 6  MUST HAVE THE C= IN COLUMNS 1 ANO 2 REMOVED.          H0076590
C*****                                                                   H0076595
C=       NUVI = 6                                                        H0076600
C*****                                                                   H0076605
         JY2I(1,1) = NUVI                                                H3600360
C*****     WRITE HEAOER FOR THIS SEGMENT                                 H3600370
         WRITE (JBZVI,3600)                                              H3600380
3600     FORMAT (1H1, 1X,36HSPEC2 - (360) COMMON AND EQUIVALENCE//       H3600390
        1       2X,36HASA REFS - 7.2.1.2  7.2.1.3  7.2.1.4// 2X,7HRESULTS) H3600400
C*****                                                                   H3600410
C*****     TEST THAT EQUIVALENCE WORKS - ASSOCIATEO ITEM OF    10.2.2/51H3600420
C*****     SAME TYPE BECOMES DEFINEO WHEN EQUATEO ITEM IS                H3600430
C*****     OEFINED                                                       H3600440
         MYVI = 2                                                        H3600450
         WAZ1S(2) = 2.0                                                  H3600460
         WRITE (JBZVI,3601) NZVI, RVY2S(1,1)                             H3600470
3601     FORMAT(//27H  LINE 1 BELOW IS HOLLERITH                         H3600480
        1         // 11H     2  2.0/I6,F5.1)                            H3600490
C*****     USE DEFINED ITEMS IN ARITHMETIC STATEMENTS          7.1.1.1H3600500
         JYVI = 4                                                        H3600510
         MXVI = 5                                                        H3600520
         NZVI = 3                                                        H3600530
         JY1I(1) = 1                                                     H3600540
         MX1I(2) = 0                                                     H3600550
         NZ1I(4) = 2                                                     H3600560
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      JY2I(2,1) = -8                                                    H3600570
      MX2I(1,3) = 9                                                     H3600580
      NZ2I(3,2) = 7                                                     H3600590
      MX1I(3) = MX2I(1,3) * (N2VI - JY1I(1)) - 18                       H3600600
      MX2I(1,1) = MX2I(1,3) * (MYVI - JY1I(1))- 18                      H3600610
      MX1I(1) = JYVI + JY2I(2,1) + N2VI - MX1I(2) + JY1I(1)             H3600620
      IAXVI = NZ2I(4,1) + JY1I(4) + MYVI - MX1I(2) + JY1I(1)            H3600630
      NZ2I(1,1) = MXVI ** NZ1I(4) - MXVI ** NZ1I(4)                     H3600640
      BBYVS = 2.0                                                       H3600650
      TX1S(3) = 1.0E1                                                   H3600660
      WAZ2S(1,2) = -3.0E00                                              H3600670
      RVY1S(1)   = .04E+2                                               H3600680
      DDYVS = RVY1S(1) ** (WA22S(1,2)-5.0+TX1S(3)) -13.0 + WA22S(1,2)   H3600690
      WAZ2S(2,1) = TX2S(2,2)**(WA22S(1,2)-5.0+TX1S(3))-13.0+WAZ2S(1,2)  H3600700
      WRITE (JBZVI,3602) MX1I(3), MX1I(1), NZ2I(1,1), OOYVS             H3600710
      WRITE(JBZVI,7367) MX2I(1,1), IAXVI    , NZ2I(1,1), WAZ2S(2,1)     H3600720
3602  FORMAT (//34H  ANSWERS BELOW SHOULD BE 0 OR 0.0//                 H3600730
     1      3(I6/) , F8.1)                                              H3600740
C*****    USE ITEMS IN ARITHMETIC IF STATEMENTS                 7.1.2.2H3600750
      IF (WAZ2S(1,2)) 3603,3604,3604                                    H3600760
3603  IF (MX1I(2)) 3604,3605,3604                                       H3600770
3605  IF (TX2S(2,2) + CCYVS ** NZ1I(4) + TX1S(3)) 3604, 3604, 3606      H3600780
3604  WRITE (JBZVI,3607)                                                H3600790
3607  FORMAT (//22H  ARITHMETIC IF FAILED)                              H3600800
      GO TO 3609                                                        H3600810
3606  WRITE (JBZVI,3608)                                                H3600820
3608  FORMAT (//26H  ARITHMETIC IF SUCCESSFUL)                          H3600830
C*****    USE ITEMS IN DO LOOP                                  7.1.2.8H3600840
3609  OO 7360 JYVI = 1,NZVI,1                                           H3600850
      TX1S(3) = TX1S(3) + 1.0                                           H3600860
7360  CONTINUE                                                          H3600870
      WRITE (JBZVI,7361) TX1S(3)                                        H3600880
7361  FORMAT (//29H  ANSWER BELOW SHOULO BE 13.0// F8.1)                H3600890
C*****    USE ITEM IN COMPUTED GO TO                          7.1.2.1.3H3600900
      GO TO (7362,7362,7364), NZVI                                      H3600910
7362  WRITE (JBZVI,7363)                                                H3600920
7363  FORMAT (//23H  COMPUTEO GO TO FAILEO)                             H3600930
      GO TO 7366                                                        H3600940
7364  WRITE (JBZVI,7365)                                                H3600950
7365  FORMAT (//27H  COMPUTEO GO TO SUCCESSFUL)                         H3600960
7367  FORMAT (3(I6/), F8.1)                                             H3600970
7366  CONTINUE                                                          H3600980
C*****  TEST EQUIVALENCE EXTENOS COMMON                                 H3600990
C*****  ARRAYS- NNY3I(20,10,2) EQUIVALENCED TO ARRAY MMY1I(400) WHICH ISH3601000
C*****  EQUIVALENCED TO THE 10TH STORAGE LOCATION IN BLANK    7.2.1.4/29H3601010
C*****  COMMON (N21I(1))                                                H3601020
      WRITE (NUVI, 8366)                                                H3601030
8366  FORMAT (34H0  TEST EQUIVALENCE EXTENDS COMMON )                   H3601040
      OO 7368  IVI = 1, 400                                             H3601050
7368  MMY1I(IVI) = IVI                                                  H3601060
      IVI = 0                                                           H3601070
      OO 7369 LVI = 1, 2                                                H3601080
      OO 7369 KVI = 1, 10                                               H3601090
      OO 7369 JVI = 1, 20                                               H3601100
      IF(NNY3I(JVI,KVI,LVI)-(JVI+20*(KVI+10*LVI) - 220))7369,8360,7369  H3601110
8360  IVI = IVI + 1                                                     H3601120
7369  CONTINUE                                                          H3601130
      IF (IVI - 400) 8363, 8361, 8363                                   H3601140
8363  WRITE (NUVI, 8364)                                                H3601150
8364  FORMAT(13H0 TEST FAILEO )                                         H3601160
      GO TO 8365                                                        H3601170
8361  WRITE (NUVI, 8362)                                                H3601180
8362  FORMAT(17H0 TEST SUCCESSFUL )                                     H3601190
8365  CONTINUE                                                          H3601200
C*****    ENO OF TEST SEGMENT 360                                       H3601210
C*****  WHEN EXECUTING ONLY SEGMENT 360, THE  STOP  ANO  ENO  CARDS     H3601220
C*****  WHICH APPEAR AS COMMENT CARDS MUST HAVE THE  C=                 H3601230
C*****  IN COLUMNS  1  ANO  2  REMOVED.                                 H3601240
```

```
C=    STOP                                                          H3601250
C=    END                                                           H3601260
      STOP 77777                                                    H9999995
      END                                                           H9999999
C*************************************************************************H4130010
C*****                                                               H4130020
C*****                          MAQQ - (413)                         H4130030
C*****                                                               H4130040
C*************************************************************************H4130050
C*****  GENERAL PURPOSE                                              H4130060
C*****     THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED        H4130070
C*****     BY SEGMENT 352.                                           H4130080
C*****  GENERAL COMMENTS                                             H4130090
C*****     SUBROUTINE MAQQ BEING DEFINED                             H4130100
      SUBROUTINE MAQQ(MWVI,IWVI)                                    H4130110
      IABS = MWVI                                                   H4130120
      IWVI = IABS + ISIGN(MWVI, -MWVI)                              H4130130
      RETURN                                                        H4130140
      END                                                           H4130150
C*************************************************************************H4630010
C*****                                                               H4630020
C*****                          MBQQ - (463)                         H4630030
C*****                                                               H4630040
C*************************************************************************H4630050
C*****  GENERAL PURPOSE                                              H4630060
C*****     THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED        H4630070
C*****     BY SEGMENT 352                                            H4630080
C*****  GENERAL COMMENTS                                             H4630090
C*****     SUBROUTINE  MBQQ BEING DEFINED                            H4630100
      SUBROUTINE MBQQ(MWVI, IWVI)                                   H4630110
      ISIGN = -MWVI                                                 H4630120
      IWVI = ISIGN + MWVI                                           H4630130
      RETURN                                                        H4630140
      END                                                           H4630150
C*************************************************************************H4730010
C*****                                                               H4730020
C*****                          AMQQ - (473)                         H4730030
C*****                                                               H4730040
C*************************************************************************H4730050
C*****  GENERAL PURPOSE                                              H4730060
C*****     THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED        H4730070
C*****     BY SEGMENT 352                                            H4730080
C*****  GENERAL COMMENTS                                             H4730090
C*****     SUBROUTINE AMQQ BEING DEFINED                             H4730100
C*****STATEMENT FUNCTION NAME IS THE SAME AS SUBROUTINE NAME CALLED BY  H4730110
C*****SEGMENT 352, STAT. FUNCTION DUMMY ARGUMENT NAME SAME AS SUBROUTINEH4730120
C*****DUMMY ARGUMENT NAME, VARIABLE IS REFERENCED IN STAT. FUNCTION     H4730130
      SUBROUTINE AMQQ(CWVS, AWVS)                                   H4730140
      BMQQ(CWVS) = CWVS + BVS                                       H4730150
      FLOAT = AVS                                                   H4730160
      BVS = CWVS                                                    H4730170
      AWVS = BMQQ(FLOAT) - (BVS + 1.0)                              H4730180
      DATA AVS /1.0/                                                H4730190
      RETURN                                                        H4730200
      END                                                           H4730210
C*************************************************************************H4830010
C*****                                                               H4830020
C*****                          BMQQ - (483)                         H4830030
C*****                                                               H4830040
C*************************************************************************H4830050
C*****  GENERAL PURPOSE                                              H4830060
C*****     THIS SEGMENT CONTAINS A SUBROUTINE WHICH IS CALLED        H4830070
C*****     BY SEGMENT 352                                            H4830080
C*****  GENERAL COMMENTS                                             H4830090
C*****     SUBROUTINE BMQQ BEING DEFINED                             H4830100
      SUBROUTINE BMQQ(CWVS, AWVS)                                   H4830110
      ABS = CWVS                                                    H4830120
      AWVS = FLOAT(ISIGN(IFIX(ABS), - 2)) + 18.0                    H4830130
```

```
      RETURN                                                            H4830140
C*****    END OF TEST SEGMENT 483                                       H4830150
      END                                                               H4830160
```

```
  SAMPLE COMPUTER, FORTRAN COMPILER LEVEL
DO NOT READ OR WRITE RECORD 2. DOUBLE SPACE ON OUTPUT.     ID 2
  OPERATING SYSTEM VERSION
DO NOT READ OR WRITE RECORD 4. DOUBLE SPACE ON OUTPUT.     ID 4
  DATE, INSTALLATION NAME
DO NOT READ OR WRITE RECORD 6. DOUBLE SPACE ON OUTPUT.     ID 6
```

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16. ABSTRACT *(A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here.)*

The NBS FORTRAN test programs, written in Standard FORTRAN are designed to test whether a FORTRAN compiler accepts the forms and interpretations of the FORTRAN language as described in the American National Standard FORTRAN document X3.9-1966. The test programs comprised of 116 test units, are structured into two versions, each containing approximately 14,500 punch card images. The test units may be used as separate executable FORTRAN programs, or may be linked end to end with other test units, with a minimum of user effort, to improve operating efficiency. Version 1 is structured into 116 executable FORTRAN programs, and Version 3, containing the same 116 test units, is structured into 14 executable FORTRAN programs for use on large FORTRAN processors.

The test program design criteria was to:

- Constrain all test programs to the FORTRAN Standard X3.9-1966.
- Reduce the effect of those areas in which the FORTRAN Standard does not prescribe a method or solution, e.g., range, precision, size of computer, etc.
- Simplify the use of the FORTRAN test programs.
- Test FORTRAN language elements before they are used in support of other tests.
- Maintain an open ended system so that tests may be changed or added.

The test programs require the use of a card reader, printer and one intermediate tape unit.

17. KEY WORDS *(six to twelve entries; alphabetical order; capitalize only the first letter of the first key word unless a proper name; separated by semicolons)*

Computer Programming language; FORTRAN; FORTRAN validation; language validation; standard FORTRAN; test program design.

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